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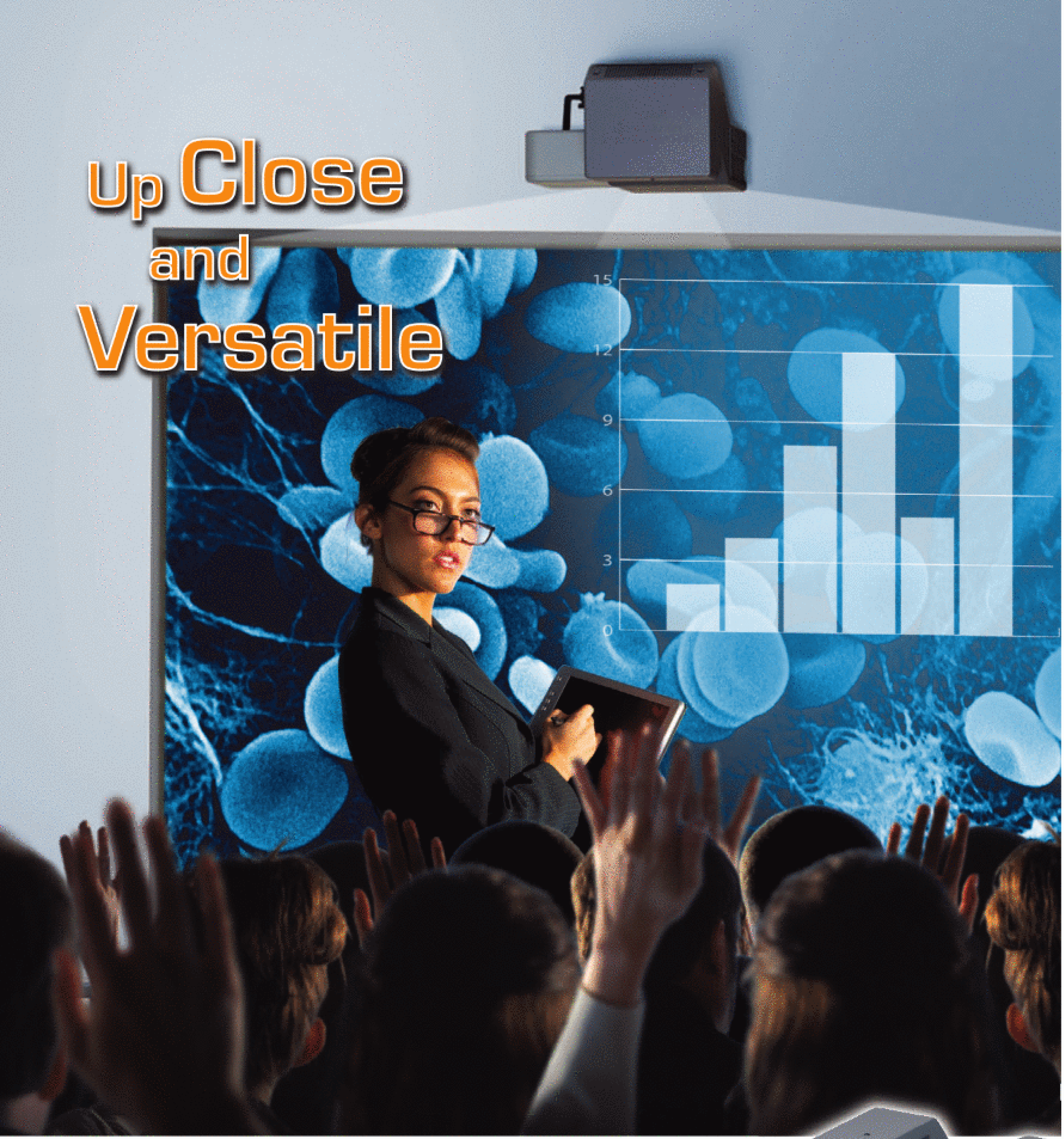

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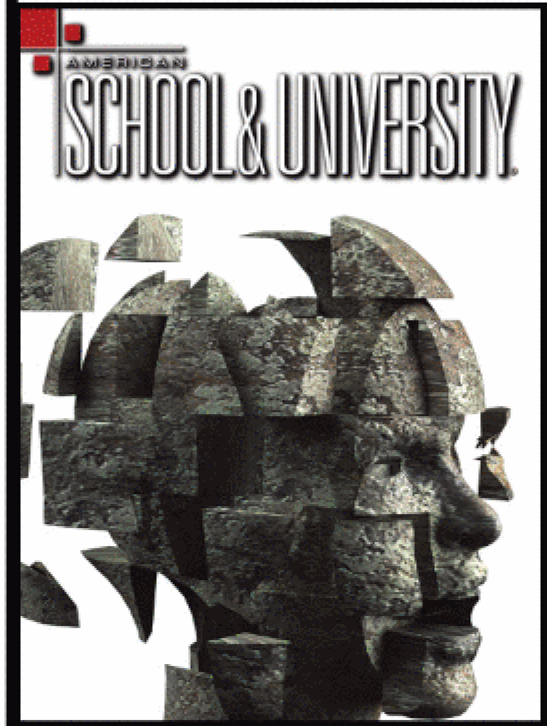

On the Cover: Exploring mental health and its effects on education facilities, staff and the community.

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Bully Up

When I hear the word "bully," I think of the scenes in "A Christmas Story" where Ralphie Parker is being harassed by Scut Farcus, the mean redhead at school (he had yellow eyes!). After months of bullying, he finally, with the encouragement of his classmates, beats up Scut in the schoolyard. The comedy is set in the 1940s, but we all have a similar story or two. Today, it doesn't seem so simple.

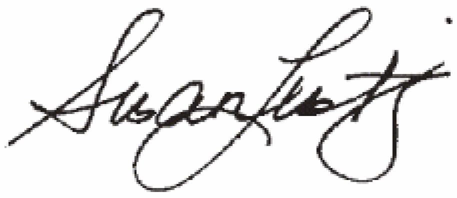
Bullying has left the playground and moved on to places people could not have imagined. Case in point: Lori Drew, the St. Charles County, Mo., parent who allegedly created a fake MySpace account to convince a 13-year-old neighbor girl that a boy was interested in her. After a few weeks, the "relationship" took a bad turn and the girl started receiving hate posts from other users. The girl, Megan Meier, committed suicide in October 2006. Drew has been indicted on conspiracy and computer-hacking charges, and will be arraigned this month. She claims the profile was the work of her daughter and a teenage employee of hers.

A member of our staff got a call the other day from a mom whose 11-year-old son had been cuffed and arrested at school for writing graffiti on a bathroom wall. Turns out, he had written something in response to being called "fat and ugly" by some school bullies. The parent thought the punishment was excessive.

My first thoughts: "What steps would I take as a parent to protect my child, and what steps would I take to help ensure the bullying stopped?"

This brings up a plethora of open-ended questions: To whom does the burden of protecting our children fall? What is the proper punishment for the response to bullying, and at what point should schools step in? Perhaps most important: What can be done to help ensure that something like graffiti doesn't escalate to actions such as bringing weapons to school or actually carrying out violence?

The burden falls on everyone: parents, the school, the community, the student, his or her friends. One incident can set a student off, but one good influence also may help prevent violent behavior. ■



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•**July 22: "Green Cleaning: Beyond Cleaning Chemicals."** Attendees will learn about green equipment; adopting green procedures; using green paper and plastic products; and sharing responsibility.

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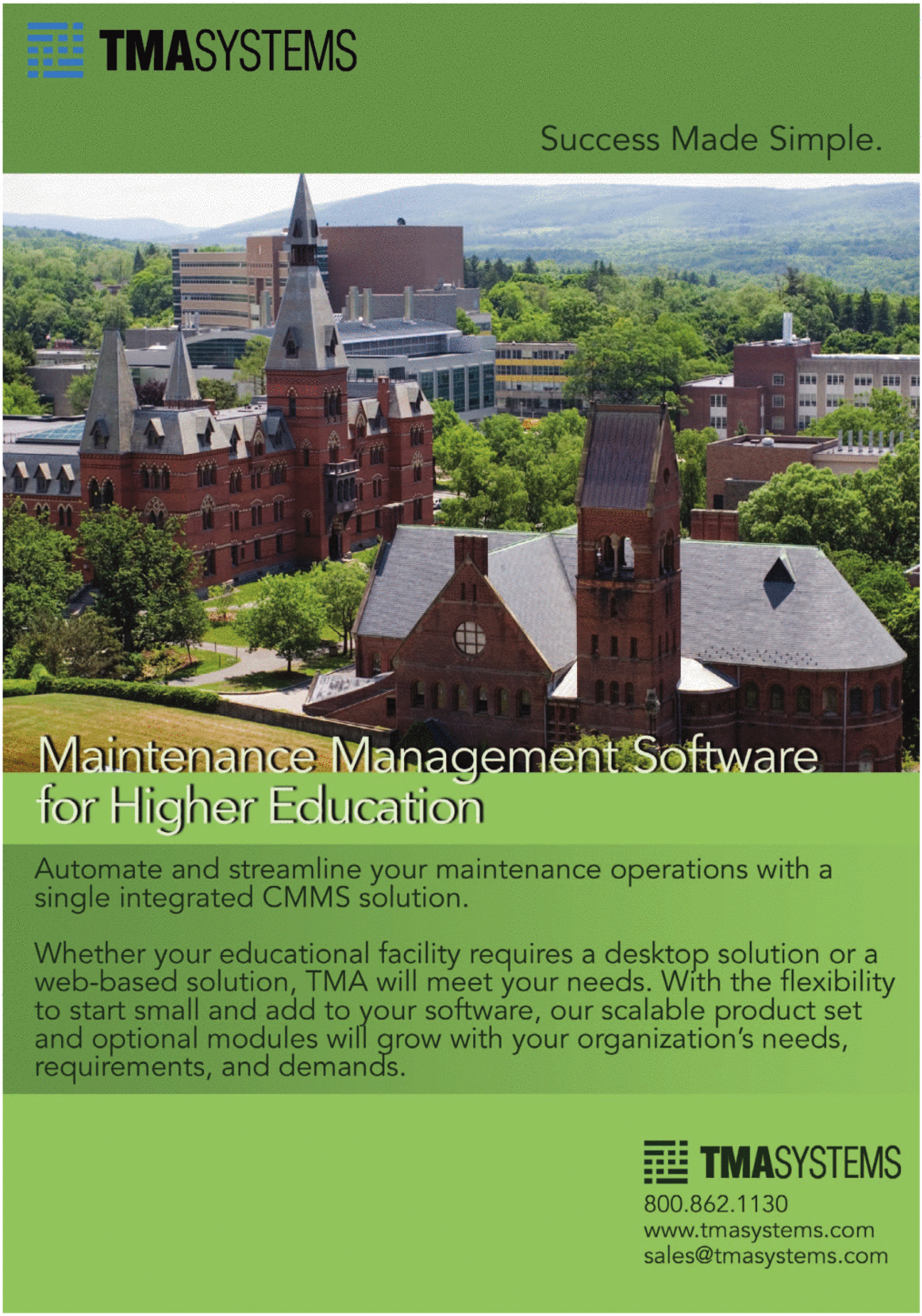
Both webinars include expert insight and practical advice from panelists including Steve Ashkin of The Ashkin Group LLC, and Mark Bishop, Healthy Schools Campaign deputy director.

Be sure to register for these free webinars at ASUmag.com!—*Susan Lustig*

A recent webinar on ASUmag.com: Proactively Planning for School Security.



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INSIDE: CAPITAL IMPROVEMENTS

CAMPUS CONSTRUCTION

Driven by $211 million in current and anticipated funding, Radford University in Radford, Va., is moving ahead with numerous construction projects to upgrade its campus.

The university has planned a $44 million facility for the College of Business and Economics building that, for the first time, will enable all business classes, faculty and related research to be situated in the same building.

Another major project underway is a $37 million building for the College of Science and Technology that will integrate information technology, and math and science programs that now are housed among four separate buildings.

Other upgrades in the works for the Radford campus: construction of three new residence halls; a new $32 million student fitness center; a $20 million addition to the Bonnie Hurlburt Student Center; and a new parking deck.

BEST PLAN FOR SCHOOLS

Colorado Gov. Bill Ritter has approved a plan that will provide $1 billion to build and repair K-12 schools statewide.

The initiative, Building Excellent Schools Today (BEST), will create a centralized school construction plan. Many of Colorado's schools are in disrepair; a 2003 state auditor's report said $4.7 billion was needed to carry out facility improvements. But the governor says half of the 178 school districts in Colorado don't have a tax base to support this level of construction.

BEST will direct $30 million to $40 million of existing revenues from the state's School Land Permanent Trust Fund to leverage up to $500 million in state dollars and an additional $500 million in local matching funds.

State officials will conduct a statewide assessment of school health and safety needs, according to the governor's office. In awarding grants, the program will give preference to projects that meet health and safety needs and help poor, rural districts with the oldest infrastructure.

BIG SPENDERS IN VEGAS

The Clark County (Nev.) district, the fifth-largest school system in the United States, will need $9.5 billion over the next 10 years to accommodate a steadily growing student population and address modernization needs.

Projections show that the school system, which encompasses the fast-growing Las Vegas area, will have 473,000 students in 2018. In fall 2007, it had nearly 309,000 students. The district says it will need to spend about $5.2 billion to build 73 new schools over the next 10 years. It also will need about $4.3 billion to modernize or replace existing schools and provide educational equity.

The district will ask voters in November to approve a $7 billion property tax proposal to pay for the bulk of the 10-year building program. The remaining $2.5 billion will come from hotel and real-estate transfer taxes.

As district officials plan for the next 10 years, they are working to wrap up its previous 10-year construction program, most of which was paid for with a $3.5 billion bond issue that voters approved in 1998. When finished, that program will have paid for 101 new schools. ■

A BUSY DECADE AHEAD

Projected new school costs in the Clark County (Nev.) district, 2008-2018

	Number of new schools needed	Average	Average land cost	Total Cost
Elementary	53	$43.775 million	$11.413 million	$2.925 billion
Middle/ Junior High	15	$75.665 million	$15 million	$1.36 billion
High	5	$157 million	$28 million	$925 million
Total	73	—	—	$5.21 billion

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CONSTRUCTION ZONE

Dining renovation

Pine Crest Preparatory School, Fort Lauderdale, Fla., renovated its 14,870-square-foot dining hall and expanded the kitchen to include a new walk-in cooler and freezer. The Felicia B. Nutter Dining Hall serves about 2,000 students daily and also caters the school's special events. The $4 million project produced a space that is bright, inviting and easy to maintain.

Light pendants, wall sconces and specialized light fixtures enhance the dining atmosphere. A special ceiling-tile system with a high sound-absorbency rate controls noise.

New air-conditioning and waste-management systems make the dining hall more energy-efficient and reduce the amount of daily waste.

Because the dining hall serves as a primary gathering place on campus, it was equipped with a flatscreen monitor to inform students and faculty of upcoming events and special announcements.

The architect is Zyscovich, Inc. (Miami).

Pine Crest Preparatory School, Felicia B. Nutter Dining Hall, Fort Lauderdale, Fla.
Photo courtesy of New York Focus

University of Rhode Island, Hope Commons Dining Hall, Kingston.
Photo courtesy of Frank Giuliani

Modern eatery

The University of Rhode Island (URI), Kingston, recently opened the Hope Commons Dining Hall, an $18 million, 42,500-square-foot facility featuring a 718-seat dining hall, late-night cafe and retail market. The facility is the first new dining hall on campus in 45 years and replaces the original Hope Dining Hall built in 1957.

The dining hall enables customers to see food being prepared at four strategically placed food venues, each with their own identity and theme. It has an open-market, restaurant feel with a variety of seating options, including booths and bar counters. A 50-seat, private dining room with exterior views to the campus is situated in the northeast corner. Two interior walls of the room are made of sliding doors, allowing it to be opened to the main dining hall for overflow seating.

Rhody Market, the late-night cafe on the second level, offers coffee, pizza, smoothies and frozen treats. Its seating area features three window walls; as well as a four-side fireplace; soft, lounge-style seating; game tables; and four flatscreen televisions.

At ground level, under Rhody Market, is the Rhody Mini Mart, which stocks convenience items, snacks and quick grab-and-go foods for faculty, staff, students and visitors.

The architect, Vision 3 Architects (Providence, R.I.), is seeking silver LEED certification for the project.

Fusion, an Asian-style pasta station, is one of the dining hall's venues.
Photo courtesy of Warren Jagger

Cafeteria replacement

With the completion of its new standalone dining court, Purdue University, West Lafayette, Ind., has replaced the last of its residence hall-based cafeterias.

The new dining court is the fifth and final new or renovated dining court constructed as part of Purdue University Residences' 10-year master plan that transforms and upgrades its on-campus dining facilities. The new food court features Brazilian barbeque, made-to-order pizza, pasta and hot sandwiches in a 60,000-square-foot building that incorporates brick, wood, tile and glass into a design similar to a ski lodge. WiFi access and a selection of widescreen TVs help make the dining court a "destination location" for students. The architect relied heavily on student input when designing the dining court, and university officials took menu cues from student feedback.

"The new upscale ambience gives students the dining experience they've come to expect through a lifetime of restaurant dining," says John A. Sautter, vice president for housing and food services.

The architect is Scholer Corp. (Lafayette, Ind.).

Purdue University, dining court, West Lafayette, Ind. Photo courtesy of Purdue Housing and Food Services

California State University Northridge, Arbor Grill & Court. Photo courtesy of RMA Photography, Inc.

Food-service pavilion

The Arbor Grill & Court pavilion at California State University Northridge (CSUN) is situated at the intersection of important student paths and houses a mercantile, the Arbor Grill, and the Freudian Sip coffeehouse. The Arbor Court is a courtyard that provides students a peaceful environment for eating, studying and socializing. The design encourages the use of its natural setting; almost all seating is in the outdoor courtyard. The landscape was designed to break down the massing of seating for variety and privacy.

The structure is a tall glass pavilion constructed within a metaphoric grove of steel trees, which support both the exterior canopy of trellising and the roof. Tall walls of shaded glass allow the exterior landscape to extend through the pavilion.

The architect is Harley Ellis Devereaux (Los Angeles).

Food court upgrade

Florida Atlantic University, Boca Raton, has renovated 20,000 square feet of staid cafeteria space.

Light fixtures, ceramic tiles and unified colors define choices and facilitate flow. Indoor seating includes booths, rectangular and freeform tables, high-back and standard chairs, and counter seating.

The outdoor dining area features epoxy-textured flooring, vinyl-coated seating, suspended stainless-steel lighting and oscillating fans.

The architect is Gallo Architects & Development Consultants, Inc. (Deerfield Beach, Fla.). JWR Construction Services (Deerfield Beach, Fla.) is the contractor. ■

Florida Atlantic University, food court, Boca Raton, Fla. Photo courtesy of Miro Rosky/Rosky Images

Playgrounds

Safety is paramount when planning play areas for children.

Most schools provide playgrounds for students to unwind at recess or after school. But many playgrounds, because of poor design, faulty equipment or deteriorating materials, can pose safety risks.

About 156,000 people a year sustain injuries on public playgrounds that require emergency-room treatment, according to the U.S. Consumer Product Safety Commission. To coincide with National Playground Safety Week this year, the CPSC has released an updated *Handbook for Public Playground Safety.*

Among the key recommendations in the 40-page guide: Always supervise children on play equipment to make sure they are safe; purchase playground equipment that meets the latest safety standards; maintain at least 9 inches of protective surfacing (shredded/recycled rubber, wood chips, wood mulch, sand or pea gravel) under and around playground equipment to cushion children from falls; check that protective surfacing extends at least 6 feet in all directions from play equipment; for swings, extend protective surfacing in front and back of the swing, twice the height of the suspending bar.

Ropes, jump ropes, clotheslines, pet leashes or cords of any kind should never be attached to play equipment because of the risks of strangulation. Schools also can avoid injuries by repairing sharp points or edges on equipment, replacing missing hardware and closing "S" hooks.

The updated guide, noting that five or more sunburns double the risk of developing skin cancer, adds suggestions to help playground designers deal with children's exposure to the sun.

"Utilizing existing shade (e.g., trees), designing play structures as a means for providing shading (elevated platforms with shaded space below), or creating more shade (e.g., manmade structures) are potential ways to design a playground to help protect children's skin from the sun," the guide says.

Bare metal slides and platforms should be situated in the shade or out of direct sunlight, the guide recommends. If trees are used to shade equipment, schools should be vigilant about keeping limbs trimmed and cleaning up debris.

The CPSC lists three categories for playground equipment: toddler (less than 2 years old); preschool (ages 2 to 5) and grade school (ages 5 to 12).

"For playgrounds intended to serve children of all ages, the layout of pathways and the landscaping of the playground should show the distinct areas for the different age groups," the guide states. "The areas should be separated at least by a buffer zone, which could be an area with shrubs or benches. This … will reduce the chance of injury from older, more active children running through areas filled with younger children."

The play area also should divide active, physical play from more passive and quiet recreation. For instance, moving equipment, such as swings and merry-go-rounds, should be toward a corner, side or edge of a play area; slide exits should be situated in an uncongested area.

The entire guide is online at http://www.cpsc.gov/CPSCPUB/PUBS/325.pdf. ■ *–Mike Kennedy*

NOTABLE

156,000 Estimated number of persons treated each year in hospital emergency rooms for injuries at public playgrounds.

9 In inches, the minimum depth of loose-fill materials for playground equipment up to 8 feet high.

6 In feet, the minimum distance that protective surface should extend (in all directions) from playground equipment.

16 In inches, the recommended maximum height for a playground balance beam for school-age children (ages 5 to 12).

Source: U.S. Consumer Product Safety Commission

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In hindsight, the warning signs were abundant that Seung-Hui Cho was mentally troubled and potentially dangerous. But authorities at Virginia Tech didn't put together all the pieces until after the 23-year-old student opened fire on the Blacksburg campus on April 16, 2007, and killed 32 people before taking his own life.

In the aftermath of last year's tragedy, administrators at Virginia Tech and countless other schools and universities began to examine the lessons to be learned so they could respond more quickly and effectively to the next crisis on campus. Many campuses have worked to notify students and staff members more quickly and comprehensively when a threatening situation is underway.

But another key aspect of schools' self-examinations should focus not on how to react to a crisis, but how to prevent one. Numerous task forces and study groups formed after the Virginia Tech tragedy have concluded that schools and universities can do a better job identifying and providing services for students like Cho who are experiencing mental-health problems.

When a massacre on the scale of what happened at Virginia Tech occurs, it's clear that the person who carries

Schools and universities need to do a better job identifying and providing treatment for students with mental-health problems.

MIND SHIFTS

BY MIKE KENNEDY

out such horrific crimes is mentally troubled. But every day in thousands of schools and campuses across the nation, students are wrestling with problems and stress in their lives, and may not know how to cope or where to turn for help. Schools cannot afford to let students' problems go ignored or untreated.

Proactive measures

Education institutions are being encouraged to bolster their mental-health services, to train faculty and staff to recognize potentially troublesome behavior, and to make sure staff members know when it is proper and legal to disclose information about a student so that potentially dangerous situations can be prevented or defused.

"A well-funded, robust, comprehensive and interconnected network of specifically student-mental-health-related services is the best line of defense in facilitating the early identification and treatment of students presenting mental-health-related behavioral issues," the University of California Security Task Force says in its January 2008 report.

It's not surprising that many schools and universities are less than comfortable addressing issues of mental health. Society as a whole is uneasy about dealing with psychological and emotional troubles.

At the same time, institutions are finding that more students are manifesting problems that go beyond what might be considered "typical" troubles such as homesickness or grade anxiety.

"More and more students of all ages and backgrounds are experiencing mental health problems that are qualitatively different and significantly more complex," says a 2006 report from the Student Mental Health Committee at the University of California.

Those include depression, eating disorders and substance abuse. "Crises, tragedies and darker issues now involve university students with a regularity that is deeply troubling," the report says.

If students are likely to feel ashamed to seek out treatment, they won't do it (see sidebar at right), and their problems will only fester.

The Wisconsin Governor's Task Force on Campus Safety issued a report last year that urges schools and universities to work to lessen the negative connotations associated with mental-health services.

"Active campaigns are needed to convince students that seeking treatment is a sign of strength and maturity, and that they should support friends or classmates seeking counseling to cope with their stress," the task force says. "Another way to reduce stigma is to make the mental health services readily available or part of a standard procedure."

In addition, education institutions need to make sure they have adequate resources to provide help to the growing number of students who could benefit from treatment.

"Colleges and universities should reach out to the surrounding communities to catalog additional counseling personnel," the Wisconsin task force says. "Pre-arranged agreements will also expedite the process of bringing these resources onto campus should the need present itself."

Keeping track

To be able to identify when a student's mental health is becoming a cause for concern, school officials have to know the student well enough to make an assessment. It helps to have some history about the student's past behavior.

But when students enroll in a new school, administrators and teachers often have no information. The new surroundings may enable students to conceal past behaviors that, if disclosed, would give administrators at a new school a more complete picture to determine whether counseling or some other intervention would be beneficial.

In the bureaucratic setting of a school district, information about a student might not find its way from one elementary school to the next, or

Reluctant patients

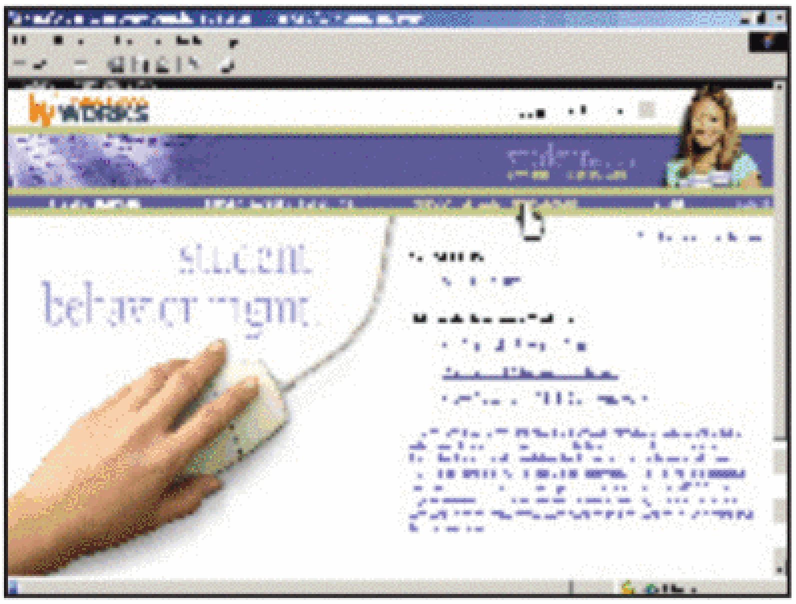
Even when services are free and readily available, the stigma that is attached to seeking mental-health services may prevent students from seeking counseling or medication to help them cope with their circumstances.

A study published in June 2007 that surveyed 2,785 students at the University of Michigan indicates that more than half of students with significant symptoms of anxiety or depression do not seek help, according to the university news service. The reluctance to seek mental-health services is prevalent even though resources are available at no cost on the Ann Arbor campus.

The study, "Help-Seeking and Access to Mental Health Care in a University Student Population," by Daniel Eisenberg, assistant professor at the University of Michigan, and doctoral students Sarah Gollust and Ezra Golberstein, appeared in the journal, *Medical Care*.

Depending on the disorder, anywhere from 37 percent to 84 percent of students did not seek treatment for significant symptoms of depression or anxiety. The study found that students who reported growing up in poor families were almost twice as likely not to seek help. Poor students also were much more likely to exhibit symptoms of depression and anxiety disorders.

The study also found that women were more likely than men to acknowledge the need for treatment and seek it. Other factors associated with not seeking treatment included lack of perceived need, being unaware of services or insurance coverage, skepticism about effectiveness, or being Asian or Pacific Islander.



Canton High School, Canton, Ohio, uses a web-based program to collect and store data about student behavior.

to middle and high school, let alone to a college that has no official connection to the K-12 schools a student attended.

Some school systems have begun to use technology to help them maintain more complete student records. Dan Datkuliak, assistant principal at Canton High School in Canton, Ohio, says his school is using a web-based computer system that collects and stores data about student conduct and behavior.

"It gives us a history and enables us to see trends," says Datkuliak. "It's definitely opened my eyes to some data. Say a kid skips class several times at the same time every time. If that coincides with break-ins in the parking lot … I'm going to look at that kid first."

The ease of adding information to the system online means that incidents that might have gone unreported now provide a more complete picture of a student's conduct.

"Things that might not seem to be a big deal are being added in case they have some relevance," says Datkuliak. "We need to know everything to have a proper intervention."

The collection of information in and of itself will not help students, Datkuliak emphasizes, unless a teacher or administrator can develop a relationship with a student and form a bond of trust. That can be helpful if a student develops problems after moving on to college.

"If Johnny doesn't know me, and I ask the parents, 'I want to go to Mr. Smith at Ohio State and talk to him about Johnny,' they're going to look at me and say, 'Are you kidding me?'" Datkuliak says. "You can't do it without the relationship piece."

New rules

Another hurdle that schools have to overcome when addressing mental-health issues is a legal one. Privacy laws determine whether a school can release data about students, and many administrators, not wanting to violate the law, have been reluctant to disclose mental-health information about a student, even if a student is exhibiting behavior that could be considered dangerous.

A 2007 report to the president by the Departments of Education, Jus-

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tice, and Health and Human Services concluded that education administrators were unclear what information they were allowed to disclose under the Federal Education Rights and Privacy Act (FERPA).

"A consistent theme … was that this confusion and differing interpretations about state and federal privacy laws and regulations impede appropriate information sharing," the report said.

The report recommended that the Education Department revise the guidelines related to FERPA to clarify to what extent schools could share information.

In March, the department followed through on the report's recommendation. The proposed new regulations for FERPA specifically address the potential release of student information in an emergency.

"An education agency or institution may take into account the totality of the circumstances pertaining to a threat to the safety or health of a student or other individuals," the proposed regulations state. "If the educational agency or institution determines that there is an articulable and significant threat to the health or safety of a student or other individuals, it may disclose information from education records to any person whose knowledge of the information is necessary to protect the health and safety of the student or other individuals."

As long as the school or university in question has a rational basis for determining that a legitimate threat exists, the Department of Education "will not substitute its judgment for that of the educational agency or institution."

"In balancing the interests of safety, privacy and treatment, the Secretary (of Education) proposes to revise the regulation to specify legal standards, but to couple those standards with greater flexibility and deference to administrators so they can bring appropriate resources to bear on a circumstance that threatens the health or safety of individuals," the proposal states.

Signs of trouble

A student exhibits odd or troubling behavior. Is he or she just having a bad day, or is it an indication of more serious and dangerous problems bubbling under the surface?

That is the kind of judgment call that school and university faculty and administrators have to make. To help teachers and staff determine how to assess such situations, The Massachusetts Institute of Technology has put together a pamphlet, "How to Help Students in Distress." It spells out academic, psychological, physical and social indicators that could be warning signs.

"Taken alone, any one … indicator is not necessarily a sign that the student is experiencing severe distress," the pamphlet states. "However, a student may need, or may be asking for help if he or she exhibits several of these warning signs."

Academic:

- Frequent absences from class or work, especially when this is a change.
- Marked decline in academic work or work performance.
- Repeated need for accommodations (such as extensions).
- Marked changes in concentration, motivation and investment in academic work.
- Papers or essays with themes of depression, hopelessness, helplessness, anger, social isolation and/or despair.

Psychological or physical:

- Marked changes in personal hygiene, noticeable weight gain or loss, or reported changes in sleeping or eating habits.
- Depressed demeanor, isolation or withdrawal.
- Apathy, lack of energy or noticeable changes in social behavior or work habits.
- Noticeable anxiety or panic.
- Marked changes in personality traits or interpersonal style.
- Anger, irritability and increased interpersonal difficulties.

Social:

- Reported family issues, parent-child conflicts, personal losses, romantic breakups or friction in friendships, relationships with advisers or other interpersonal relationships.
- Concerns expressed by peers, housemasters, resident assistants, advisers or anyone else with immediate and personal knowledge of the student.

To read the entire pamphlet, go to http://web.mit.edu/medical/pdf/faculty_brochure.pdf.

Comments solicited

Before deciding whether the proposed changes will be adopted, the education department accepted comments on the proposal from interested parties.

The National School Boards Association (NSBA) has raised several concerns in its comments.

"School districts, particularly those that are small and rural districts, may not feel they have the expertise on staff (law enforcement officer or school resource officer, psychologists, and other mental health professionals) to determine whether a threat is 'articulable and significant,'" NSBA states. "NSBA recommends that the Department change the proposed regulations to allow school districts to involve outside experts in determining whether a health and safety emergency exists."

NSBA also says setting "articulable and significant" as the standard for a threat is too stringent.

"The standard created by the lan-

guage is so high that school districts will not be able to act until a crisis is already happening," NSBA contends. "Often student behavior that raises concerns … is chronic or escalating and does not necessarily pose a clear and immediate threat."

NSBA, noting that some of the changes to FERPA rules have been prompted by the Virginia Tech shootings, suggests that the regulations also address less catastrophic safety threats.

"School districts face threats daily from students who are at risk of engaging in behaviors less dramatic than school shootings (sexual abuse, physical assaults, gang activity, etc.) that can have equally devastating consequences on individual victims," NSBA states. "Guidance from the department in determining when these behaviors meet the threat threshold would help schools cope with the full range of threats to the safety of its students, and facilitate the provision of services to students engaged in threatening or unsafe behavior."

The association offered to work with the education department after the new regulations are in place to look at how they work in real-life situations.

Virginia Tech Day of Remembrance activities, April 15-16, 2008.
Photo courtesy of Jim Stroup

CONTINUED...

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"Such guidance might include scenarios … would describe when and how school districts could evaluate the threat; when and whom school districts could share information with; and what information could be shared," says NSBA.

Appropriate protection

In its comments, the National Alliance on Mental Illness (NAMI) stated that it supports the proposal.

"This provides appropriate protection for sensitive and otherwise protected information, while ensuring that parents and other appropriate individuals are apprised of an emergency and have the opportunity to intervene to protect the health and safety of those involved," says Michael J. Fitzpatrick, executive director of NAMI.

However, the New Mexico Protection and Advocacy System, a nonprofit group that supports the rights of people with disabilities, says the "rational basis" standard for disclosing private student information is not stringent enough and could "destroy the department's enforcement capabilities."

"Schools may take broad leeway in making disclosures, which could include private and sensitive mental health information," says Tim Gardner, a staff attorney for the organization. "With only a 'rational basis' review, student confidentiality would be in serious danger."

Gardner suggests that the standard should be that school administrators have a "legitimate belief" that a health or safety risk exists.

The proposed regulations also clarify that even after a student reaches the age of 18, a school in certain circumstances may disclose education records to parents without the student's permission. Among those circumstances: if the student is a dependent for federal income tax purposes; if there is a health or safety emergency; or "if the student is younger than 21 and has violated an institutional rule or policy governing the use or possession of alcohol or a controlled substance."

Fitzpatrick's comments on the proposal emphasized the benefits of colleges providing parents with information about mental-health issues involving their children.

"There are certainly exceptions in which students would not want their families notified," says Fitzpatrick, "but in most cases, college students with mental illnesses rely on their families for support, especially in cases involving a psychiatric crisis." ■

Kennedy, staff writer, can be reached at mkennedy@asumag.com.

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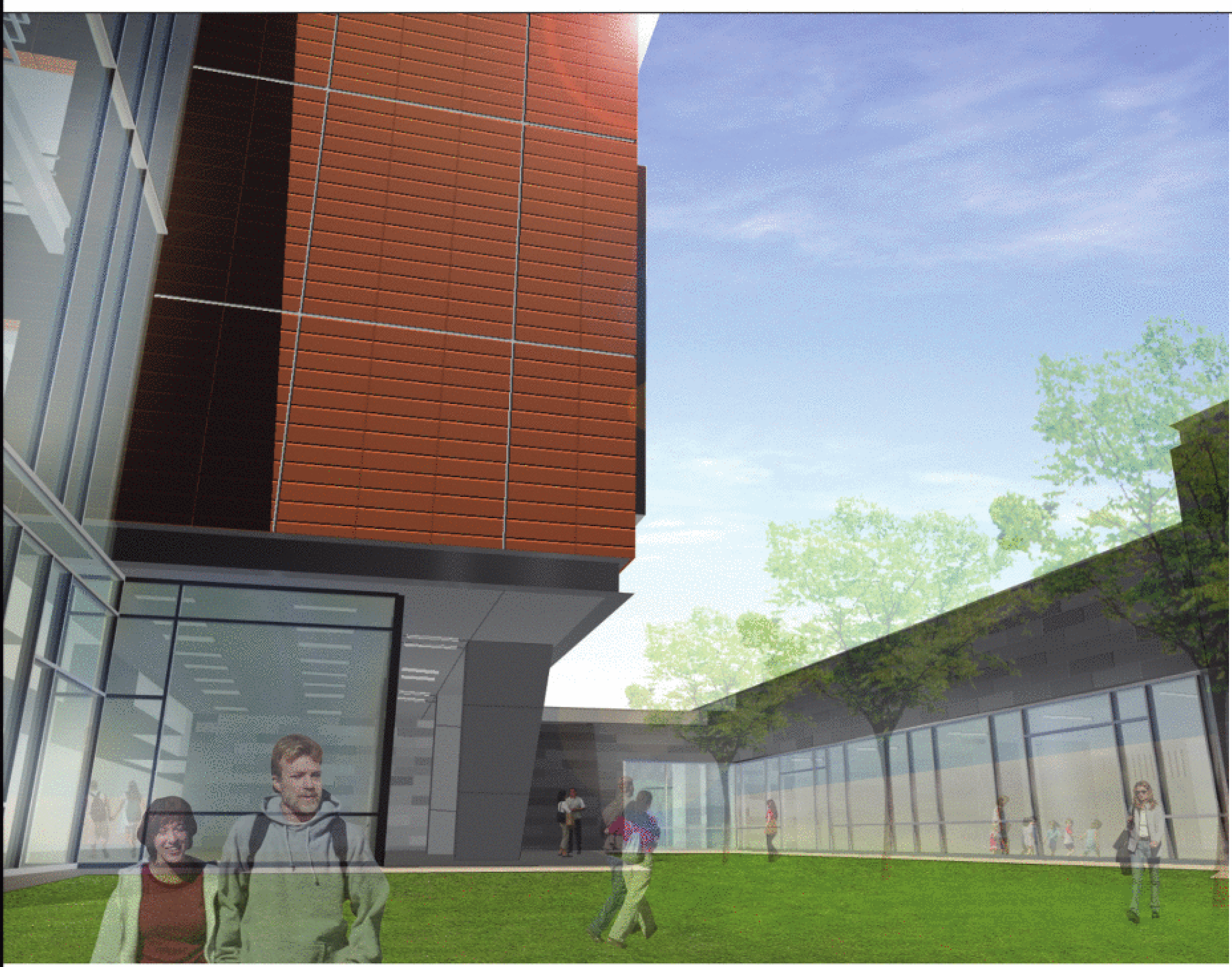


When completed in October, Central Michigan University's (CMU), Mount Pleasant, Mich., College of Education and Human Services facility will seek LEED certification.

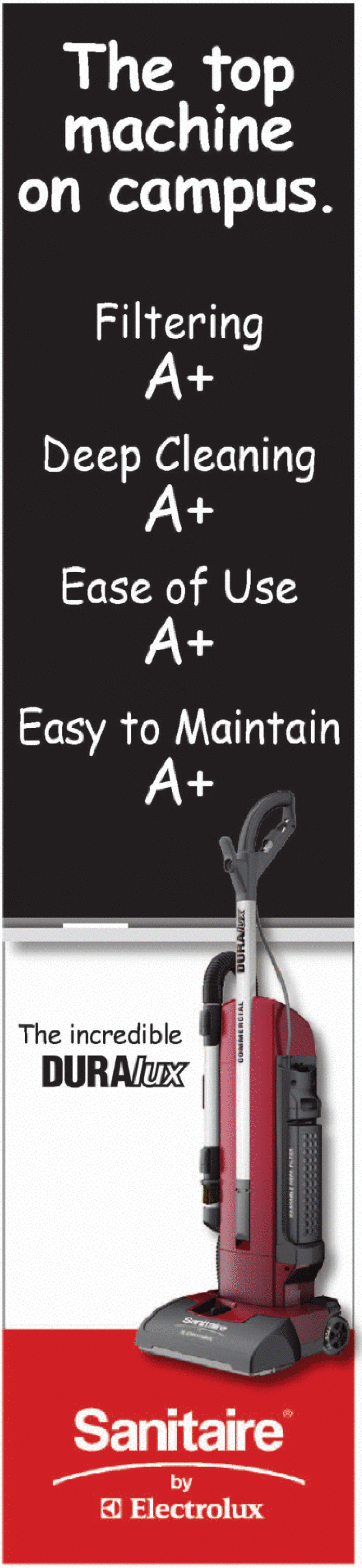
Simple Strategies

An investment in green can reap sweet rewards.

By Tod Stevens

A lot of misunderstandings exist regarding sustainable, or green, construction. It's important that educators understand the benefits so they can communicate them to stakeholders.

Many education professionals have heard the arguments before: "It's too hard," "I don't have the time or money," and "How is this going to help me now, let alone later?" These statements may sound like the words of students balking at an education, but these are some of the common misconceptions about green building. The arguments are similar, as are the answers, because green building is as achievable, as aesthetically rewarding and as wise an investment



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Window hoods on Central Michigan University's College of Education and Human Services facility help control the sun all year.

as a good education. And of that wise investment, Aristotle said, "The roots of education are bitter, but the fruit is sweet."

According to the U.S. Green Building Council (USGBC), a $4 investment (per square foot) in building green nets a $58 benefit (per square foot) over 20 years. Savings continue to add up over the lifetime of the facility. And while some stakeholders may focus only on short-term benefits, it is imperative that education professionals impart to them the long-term benefits of green building and of being good stewards of the environment, modeling good citizenship to students, and passing that legacy on to future generations.

What is green building?

Green building is good design created through smart strategies, such as daylighting, siting, skin selection, system selection and material selection. These strategies provide overall cost-savings and more healthful buildings, foster enhanced student performance, and offer branding opportunities as an environmentally proactive education facility.

In addition to these benefits, education professionals must consider that green building's future already has taken root. According to the USGBC, which rates and certifies green building based upon its Leadership in Energy and Environmental Design (LEED) rating system, LEED projects are being built in 41 countries and all 50 states. With the education sector expected to have 64 percent green building growth, according to USGBC, nationwide building mandates are likely in the near future, especially for publicly funded projects.

According to USGBC, a bipartisan caucus in the U.S. House of Representatives already has been created to advance green practices in schools. Today's students—perhaps the most environmentally conscious gen-

eration—will become tomorrow's corporate leaders and public policymakers, and also will add their voices to the impetus for federally mandated green building.

Natural choices

Some things to look at when incorporating green design in projects:

•**Natural lighting.** Effective siting on an east-west axis is one of the most crucial and cost-saving strategies in green building. Studies show that ample natural lighting in classrooms creates a pleasing environment, minimizes the need for supplemental lighting, and fosters improved learning and teaching.

For example, window hoods, which increase comfort for much longer time spans than a typical window system, can help control the

> Selecting the right roof can reduce energy consumption significantly.

sun all year, deflecting the summer's direct heat and rays, and enabling the winter sun to enter deeply and naturally warm the spaces.

Separate switches on interior lighting can shut off perimeter lights when enough daylight has entered rooms, further reducing the costs and needs of supplemental lighting. Selecting fixture task lighting, in which lights go down to the desk rather than illuminating the whole space, also conserves energy.

•**Roofing.** Selecting the right roof can reduce energy consumption significantly. Climatic and other regional variations are a major consideration.

One option is a green roof planted

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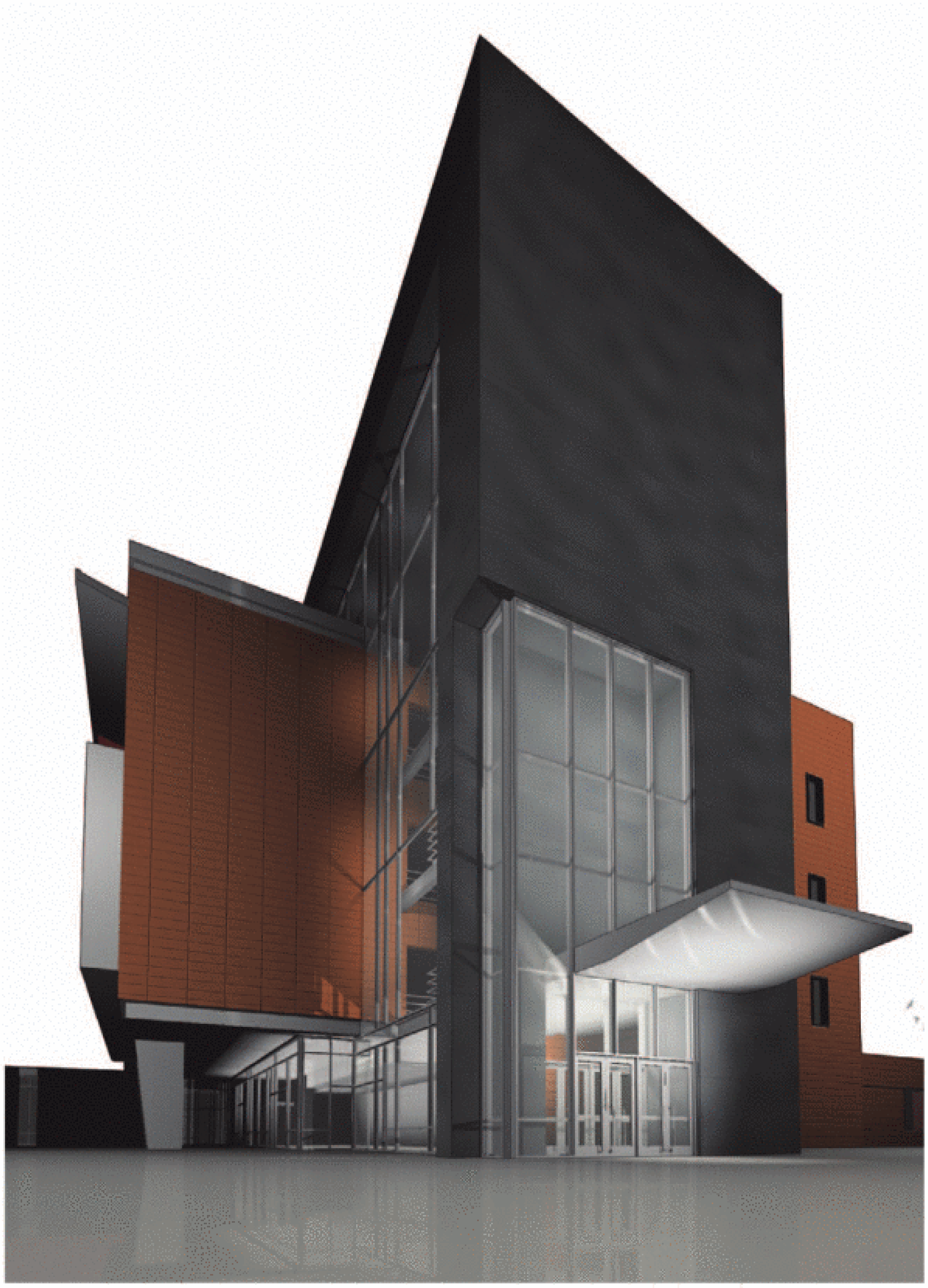


When planning Central Michigan University's CEHS facility, the team envisioned a facility that also would meet the requirements of long-term maintenance, durability, serviceability and all associated costs.

with sturdy, low-growth, flowering sedum plants. Benefits of this type of roof are numerous. The roof filters and collects rainwater, preventing dirt and excess water in the storm system, which saves on water, sewer and drainage requirements. The rainwater captured by the roof also can be reused for irrigating landscape or flushing toilets. The roof also reduces air pollution (greenhouse gases) and cooling costs, as well as provides wind buffering and sound insulation; produces oxygen; and increases biodiversity, creating small habitats. The roof also can be a unique learning tool, offering a multitude of research and study opportunities to students and faculty alike.

•**Material choices.** Bamboo paneling is another example of creativity, aesthetic value and functionality in green building materials. Research has found that the woody bamboo panels are tough and resistant to scuffing and other types of abuse that can minimize replacement costs and waste. Providing more flexibility than the tile or block traditionally used in school corridors, bamboo panels also can be taken down to access surfaces behind them.

•**Ventilated walls.** A ventilated wall system (VWS) is relatively new in the United States, but has been used for several decades as a major system in Europe and Canada. In traditional walls, increased pressure inside the wall cavity acts as a straw, sucking water into the wall's interior cavity. Construction deteriorates when water seeps in, fostering mold and mildew. A VWS equalizes the pressure in the cavity, eliminating mold and mildew, and avoiding the sick-building syndrome that has plagued many older education facilities and caused clean-up or deconstruction costs.

•**Recruiting and retention.** An institution that demonstrates it is proactive toward sustainability has an effective recruiting argument for prospective students and future faculty members. Numerous studies of green buildings also show improved health among occupants and users.

Collaboration with administrators, stakeholders and the project team early in the process can help identify and envision a facility that will meet the requirements of long-term maintenance, durability, serviceability and all associated costs. Having engineers at the table early can help achieve great synergies in a seamless, holistic, real-time approach, as well as result in many cost savings, including economical sizing of the mechanical systems from the start. ■

Stevens, a LEED-accredited professional, is a principal at SHW Group, a national education design firm with a focus on learning environments from pre-K through graduate studies. He can be reached at (248)291-0595; tstevens@shwgroup.com.

NOTABLE

50 Number of states that have LEED projects completed or in progress.

Fast Payback

Simple, cost-effective ways administrators can lower electric costs and emissions in a budget crunch.

By David Simon

Energy costs are projected to rise as much as 12 percent in 2008, and a facility's "carbon footprint" has become an issue of increasing importance. So, many schools and universities are taking a hard look at their energy consumption. Education facilities can save tens of thousands of dollars in yearly electric costs, and cut harmful emissions by thousands of tons, by adopting a handful of simple, cost-effective efficiency strategies. Although efficiency investments of every size and cost are possible, several measures can reduce electrical consumption and have a payback period of three years or less.

Two areas of "low-hanging fruit" for a school or university seeking to

lower electric costs are lighting and electrical motors.

See the light

Lighting typically is the largest piece of an education facility's electric cost, accounting for as much as 50 percent of a bill. The obvious first step is to replace incandescent with fluorescent lighting, and most schools and universities already have taken this step—but that's just the first step. The next steps include replacing high-intensity discharge (HID) lights with fluorescents; treating fluorescents to reduce harmonics and regulate voltage; and adding lighting controls to reduce or eliminate light in rooms with adequate ambient light or no occupants. Daylighting—the practice of altering the building envelope to introduce more natural light—also may be an option, although a building's characteristics may raise the cost of daylighting so that the payback period exceeds three years.

HID lighting is found in places with high ceilings or no ceilings, such as gyms, cafeterias and stadiums. Although fluorescents historically could not match their output and thus were a poor substitute for HIDs, lighting advances have led to the development of high-intensity fluorescents (HIFs), which now are superior in most respects to their HID counterparts. HIFs can have as many as seven advantages over HIDs: lower energy consumption, less loss of light output over product life (lumen depreciation), better dimming abilities, faster startup and restart times, better color rendition, more light output in the spectrum visible to humans (pupil lumens), and reduced glare. Thus, in most applications, fluorescents are more cost-effective than HIDs and able to provide light of better quality.

This school replaced 400-watt HIDs (left) in its gym with fluorescents (right), resulting in light output of greater intensity and better color—a wattage reduction from 450W to 224W, and a 20 percent drop in electricity costs. Photo courtesy of SpecLight, an Acuity Brands Company

Harmonic filtering and cancelling devices installed at a lighting panel to reduce harmonic distortion. Photo courtesy of Energy Automation Systems, Inc.

Where a facility has already replaced incandescents and HIDs with fluorescents, significant further savings can be achieved by fine-tuning the fluorescents in one of several ways. One way to treat fluorescents is by correcting harmonic distortion, a kind of electrical feedback or white noise that increases heat in the light fixture and reduces its electrical efficiency. Harmonic distortion arises in electrical systems with many non-linear loads—those drawing current that does not travel in a sine wave. Fluorescent lights are a predominant non-linear load in most buildings, but other examples of this kind of load are computers, monitors, printers and photocopiers.

Harmonics can be corrected by the use of harmonic filters or cancellers placed either at a lighting fixture or at the lighting panel to reduce harmonics in the lighting system and increase its efficiency. Reducing or eliminating harmonics in an electrical system will cause all non-linear loads in the system—not just lighting—to consume less electricity and operate more efficiently.

Another way to reduce fluorescents' electrical consumption is by means of a voltage regulator, which can reduce current to a light fixture by 15 to 30 percent, with a corresponding drop in electrical consumption. The voltage regulator causes a small, often undetectable, drop in light levels.

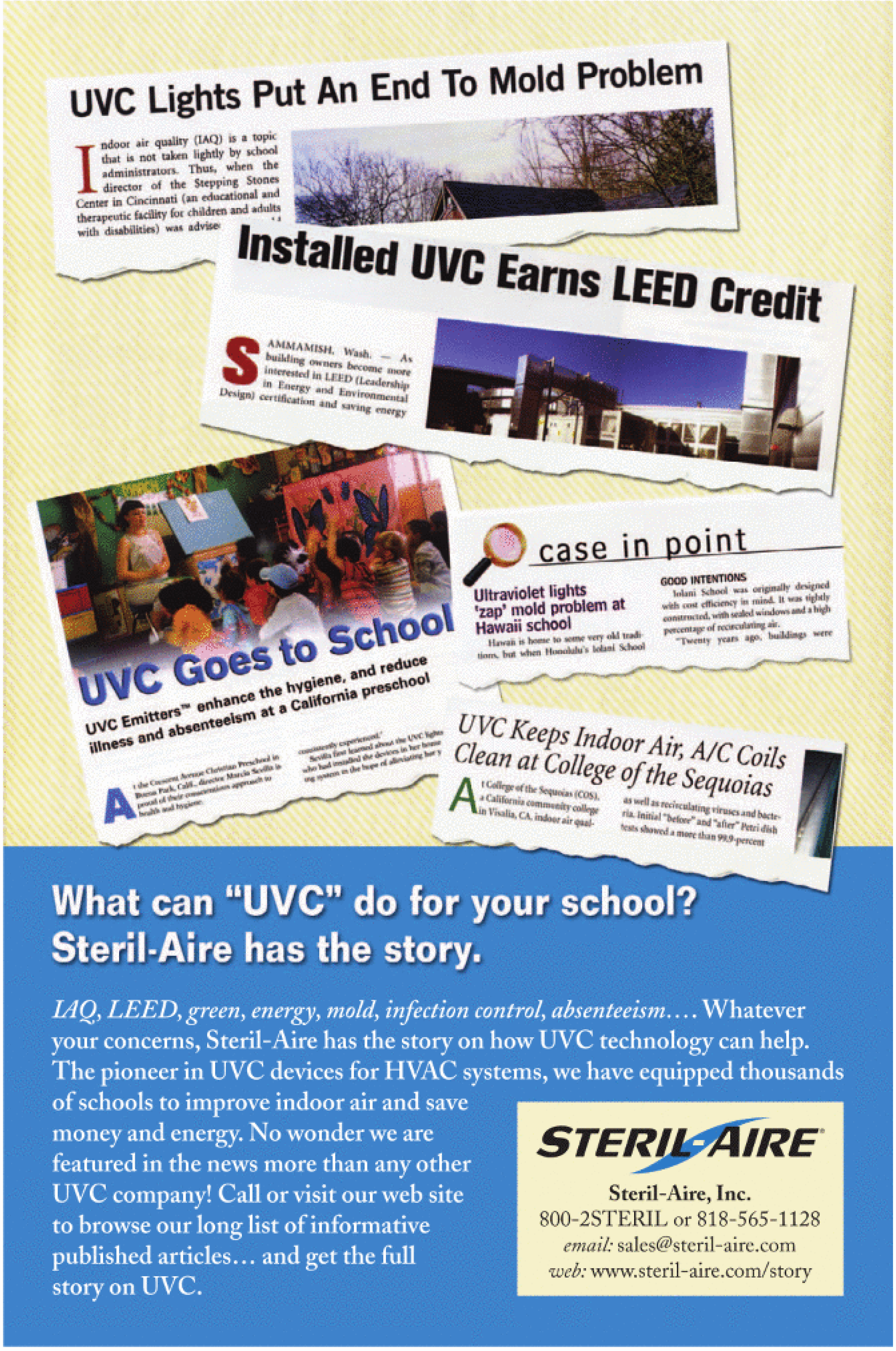
Automated lighting controls also can help reduce a light's electrical consumption. The three main types of lighting controls turn lights on or off depending on ambient light, time of day or room occupancy.

Capacitors (white rectangular boxes) attached to two circulator pumps can improve power factor and motor efficiency. Photo courtesy of Energy Automation Systems, Inc.

Get your motor running

After lighting, the other major opportunity for fast-payback electrical savings in schools and universities is by addressing rotating electrical motors, including drives, pumps and compressors. These are found throughout campuses in many kinds of equipment, such as elevators, refrigerators, fans, boilers, air handlers, chillers and swimming pools. Motors can account for up to 30 percent of a building's electric bill and are inherently inefficient in two ways. First, because they typically lack the ability to vary their speed, they may run at full speed even when the device they are driving (such as a fan, pump or blower) does not require it.

Second, motors rely on both "active" power and "reactive" power. Imagine pushing a ball across a field that slopes to the side—active power is the force that drives the ball across the field, and reactive power is the force that keeps the ball from rolling down the slope. "Power factor" measures the relationship between active power and reactive power. If the field in this analogy were level, requiring no reactive power, the power factor would be 100. Motors typically run at a power factor of 80 or 90 out of 100, representing a potential efficiency loss of 10 to 20 percent. An idling motor, or one not under load, runs at an even lower power factor—sometimes as low as 50. A motor running at a power factor less than 100 is inefficient in two ways. First, the motor demands extra current to compensate for the power factor deficiency, which increases the electric bill. Second, the extra current causes the motor to run hotter, which reduces its lifespan. Correcting a motor to reduce its electrical consumption by 10 percent can increase



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NOTABLE

12 Percentage amount energy costs are expected to rise this year.

the motor's life by 50 percent.

One way to improve a motor's efficiency is to regulate it with a variable frequency drive (VFD). A VFD enables the motor's speed to change with the changing demands of the device it is driving, such as a fan, pump or blower. A VFD can reduce a motor's electrical consumption by 10 percent or more.

Another way to help a motor run more efficiently is to increase its power factor by attaching a capacitor to the motor. A capacitor acts as a short-term battery, regularly storing and discharging current as necessary to provide power to the motor in a more efficient manner. In fact, a capacitor can be attached to a motor fitted with a VFD, and it will help both the motor and the VFD operate more efficiently. When addressing low power factor, it may be prudent to install capacitors in banks at electric panels, individually at particular loads, or both.

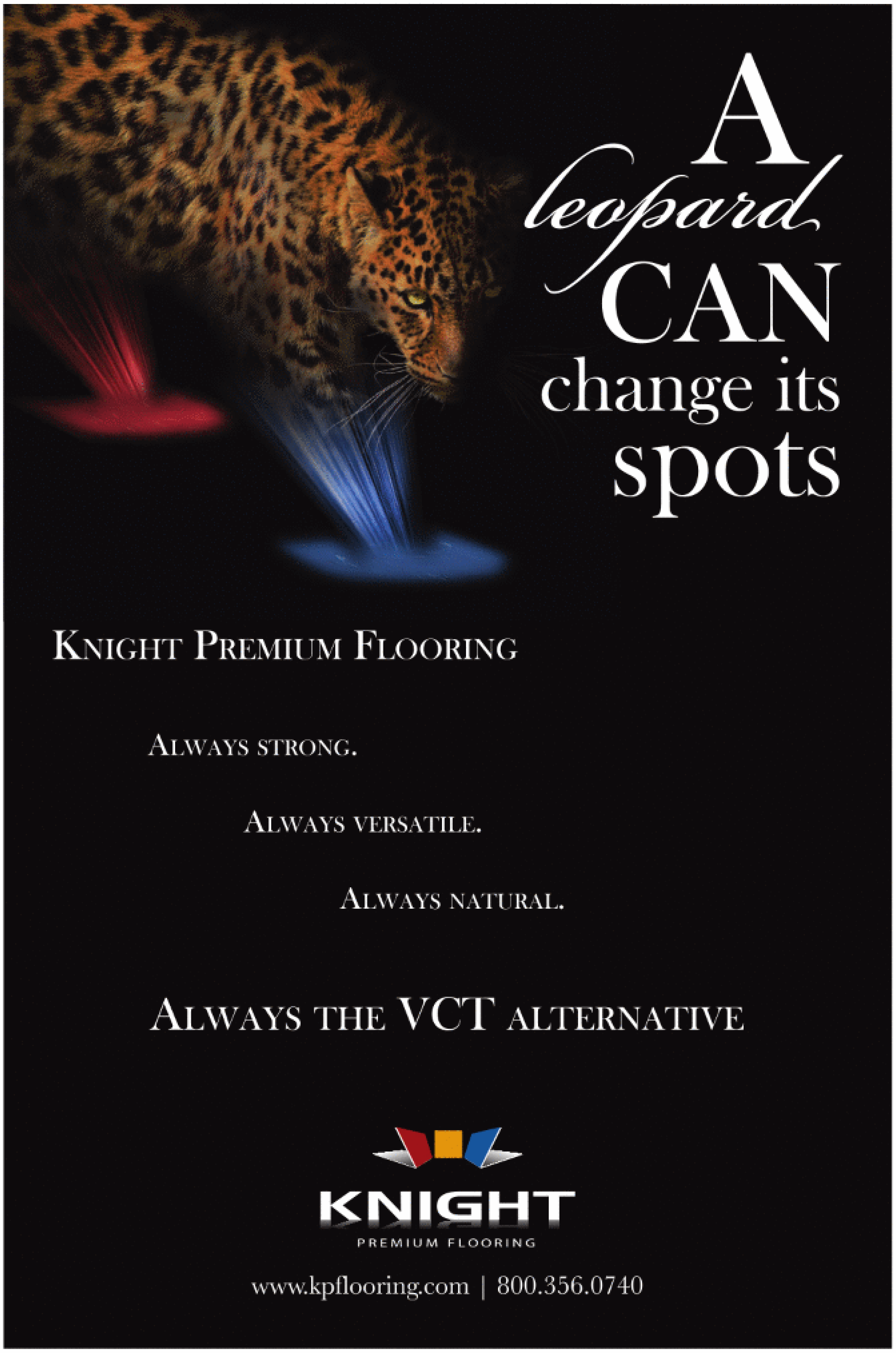
Low power factor generally is a problem when a facility has many motors. Electric utilities impose a surcharge when power factor falls below a designated threshold, such as 90. To determine whether a metered building has a power factor problem, check the building's electric bill for any extraordinary charges related to power factor (e.g., power factor adjustment).

By the numbers

What can these efficiency measures achieve in financial and ecological benefits? By correcting lighting and motor inefficiencies using the fast-payback methods described above, a school or university can lower its electric consumption by 10 percent or more.

Estimated annual energy costs per student are $175 in schools and $250 in universities. Accordingly, at a 1,000-student school, a 10 percent drop in consumption would lower annual electric bills by $17,500 and annual carbon emissions by 250,000 pounds. At a 10,000-student university, a 10 percent drop would lower annual electric bills by $250,000 and annual carbon emissions by 3.6 million pounds. ■

Simon is CEO of Evergreen Energy Solutions, an energy consulting firm. He can be reached at (775)831-8677 or david.simon@evergreensolves.com.



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Solid plastic lockers do not require painting, and they can last longer since they will not rust or deteriorate in moist locker room environments.

Quality Counts

Education institutions should explore new restroom technologies and equipment to save water and create a more sustainable environment.

By Kris Alderson

Everyone wants kids to grow up smart. A child's educational success depends on good teachers, challenging curricula and involved parents. But student achievement also can be affected by the healthfulness of a school's environment.

That environment includes the restrooms that consume millions of gallons of water on campuses throughout the nation. Education institutions that embrace environmentally friendly products and technologies for restrooms can cut down on water and energy use, and save valuable resources.

A green path

At last year's annual meeting of the U.S. Conference of Mayors, the mayors cited studies that identified the benefits of learning in a green school and the urgent need for more healthful and productive places of learning. They noted the benefits of improved indoor air quality, including lower asthma rates, fewer allergies, reduced absenteeism and increased teacher retention rates.

The mayors also urged Congress to support K-12 green school demonstration projects and research to better understand the environmental, economic and health benefits of green schools. The consensus was that if schools and universities don't invest in more efficient, energy-saving products and installations, their cost of operations will increase, and student performance will suffer.

> In locker rooms, several manufacturers offer both low-flow lavatory faucets and low-flow showers.

In a recent study, "Greening America's Schools: Costs and Benefits," by Capital E, a national clean energy technology and green building firm, researchers found that a typical green school involves a 2 percent increase in cost, but provides financial benefits that are 20 times as large. The study of 30 green schools reported a savings of $100,000 a year in energy costs alone—enough to hire two teachers, or buy 500 computers or 5,000 textbooks.

The Capital E report also found that green schools reduced water use by about one-third. These savings help lower pollution and reduce costs to treat and transport wastewater. Water-saving strategies can save cities hundreds of thousands of dollars or more by deferring the need for infrastructure improvements such as stormwater detention and treatment facilities.

Many schools and universities already are aware of the importance of going green. According to a Green Building SmartMarket Report released by McGraw-Hill Construction in January 2007, the education market is not only the largest construction sector, but also the fastest-

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Water efficiency in education institutions should start in the restroom.

NOTABLE

14 Estimated percentage of total school water use that can be saved by replacing toilets that use as much as 4.5 gallons per flush (gpf) with low-volume toilets that use 1.6 gpf or less.

growing market for green building.

Hundreds of schools have applied for LEED certification from the U.S. Green Building Council, which administers the LEED rating system. The McGraw-Hill report also notes, however, that there remains "a strong need for access to and information on green building products" among school and academic administrators.

Restroom focus

Environmentally friendly products and technologies for restrooms have great potential for energy and water savings. Here are some strategies for high-performance restrooms:

•**Use technology.** Because restrooms and locker rooms consume a lot of water, they should be a primary focus for improving water efficiency. Innovative technologies for toilets, faucets and other fixtures can help facilities earn LEED credits for water efficiency. Some newly constructed schools collect rainwater or gray water for toilet and urinal flushing or other non-potable functions.

Other water-saving strategies are relatively easy to achieve. Specifying low-flow fixtures, metered faucets and waterless urinals can reduce water consumption by more than 30 percent.

•**Use less water.** Replacing toilets that use as much as 4.5 gallons per flush (gpf) and specifying low-volume toilets that use 1.6 gpf or less can save an estimated 14 percent in total school water use. Water-use requirements for faucets and lavatory systems vary from 2.2 gallons per minute (gpm) to 2.5 gpm depending on the plumbing or building code, but generally, lavatories in public restrooms should use just 0.5 gpm. Be sure to check your local codes and water-use requirements. Additional water savings can be achieved by installing sensor-activated flush meters.

Photovoltaic cells integrated into the top of a lavatory system can store and use energy collected from normal restroom lighting—and that energy can power the lavatory's sensors and valves. These units operate without batteries or electricity.

•**Low-maintenance locker rooms.** In locker rooms, several manufacturers offer both low-flow lavatory faucets and low-flow showers. Another water-saving option is to specify infrared sensors on faucets to ensure that water is running only when users are washing their hands. The flow-rate limit for metered faucets is 0.25 gallons per cycle (gpc), which is the amount of water used during the time the faucet is activated.

Replacing metal lockers with solid plastic lockers means never having to paint them; they will last longer because they will not rust or deteriorate.

•**Replace outdated sinks and toilets.** To save water and update the look of a facility, replace old sinks, toilets and urinals with more efficient models. By removing stained or cracked china lavs and replacing them with solid-surface lavatory systems, education institutions can make restrooms more attractive and functional.

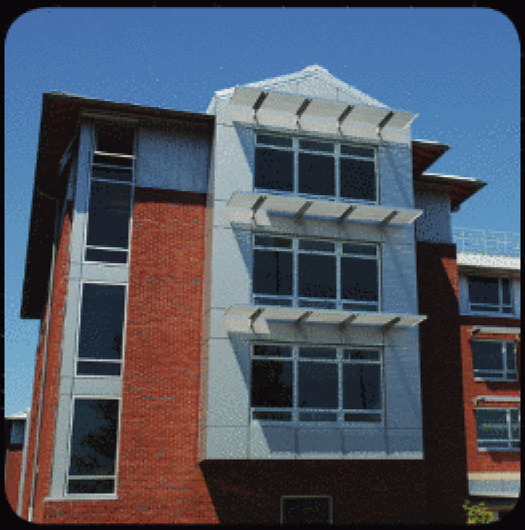
Other features that save money and keep restrooms tidier are built-in soap dispensers that drip directly into the bowl and infrared sensors that shut off flow after use.

•**Shower solutions.** To curb water usage, specify low-flow showerheads that use 2 gallons per minute (gpm). Because students are concerned about privacy, schools are replacing group or gang showers with private ones. ■

Alderson is a senior marketing manager for Bradley Corp., Menomonee Falls, Wis., a USGBC member and manufacturer of locker room products, plumbing fixtures, washroom accessories, partitions and emergency fixtures. She can be reached at (262)532-1096; kris.alderson@bradleycorp.com.

19th Annual

Residence Hall Construction Report



by Joe Agron

The construction of residence hall facilities at colleges and universities continues to be strong, as institutions scramble to meet the housing needs and varied demands of a growing student population.

Data collected from 39 new residence hall projects completed in 2007 follow. According to *American School & University*'s 19th annual Residence Hall Construction Report, the median cost per resident increased significantly, resulting in facilities that were smaller in both total square footage and number of residents accommodated than previous years.

Among the findings: the median new residence hall completed in 2007 was 69,125 square feet (down from 89,000 square feet in 2006) and accommodated 204 residents at a total cost of $11 million (compared with 316 residents and $15 million the year before).

Co-educational facilities remain the predominant type of new residence hall (75.7 percent), with the remainder designed for single-sex arrangements and/or couples/families. Individual colleges and universities financed the majority of the new residence hall projects in 2007 (66.7 percent); private financing accounted for 16.7 percent and 16.6 percent were paid for by a combination of the two.

The charts and tables that follow provide data by averages and medians, as well as list the various amenities provided in new residence hall facilities.

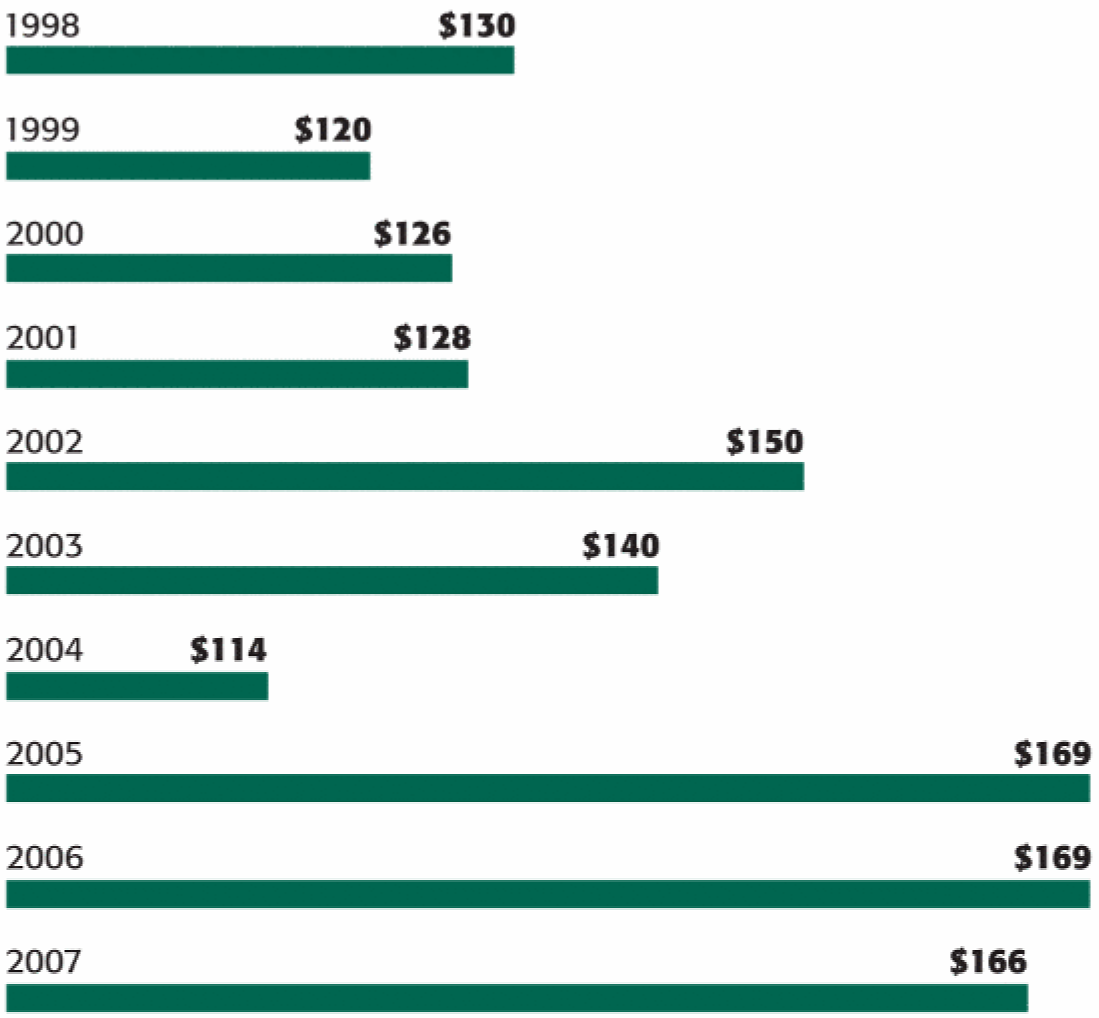
Continued...

Residence Hall Construction (2007):

Variable	Average	Median
Cost ($ millions)	$14.8	$11.0
Size (Sq. Ft.)	76,219	69,125
Residents	240	204
Cost/Sq. Ft.	$178	$166
Sq. Ft./Resident	347	319
Cost/Resident	$58,252	$55,000

Housing costs—10 years of data

The cost per square foot to construct a new residence hall in 2007 dropped slightly from the prior year's high. The median cost per square foot for the past decade:



Amenities in residence halls completed in 2007:

Air conditioning	91%
Carpeting	50%
Classrooms	23%
Computer access to library	56%
Dining hall	28%
Electronic access to building	77%
Electronic access to rooms	49%
Elevators	74%
Fitness Center	18%
Internet access-wired	77%
Internet access-wireless	72%
Kitchen	62%
Laundry	90%
Television rooms/lounges	82%

Project Snapshot:

Middle Georgia College, Gateway Residence Hall, Cochran, Ga. Photo: © 2007 Thomas Watkins Photography

Modernized housing

With the completion of three new residence halls and an academic/recreational student activity facility, Middle Georgia College, Cochran, is moving toward its goal of modernizing all student housing on the college's main campus.

Gateway Residence Hall is suite-style housing where students have a single room and share a common bath with one other student. The three-story, 88,125-square-foot facility has 296 rooms in two wings connected by a gateway.

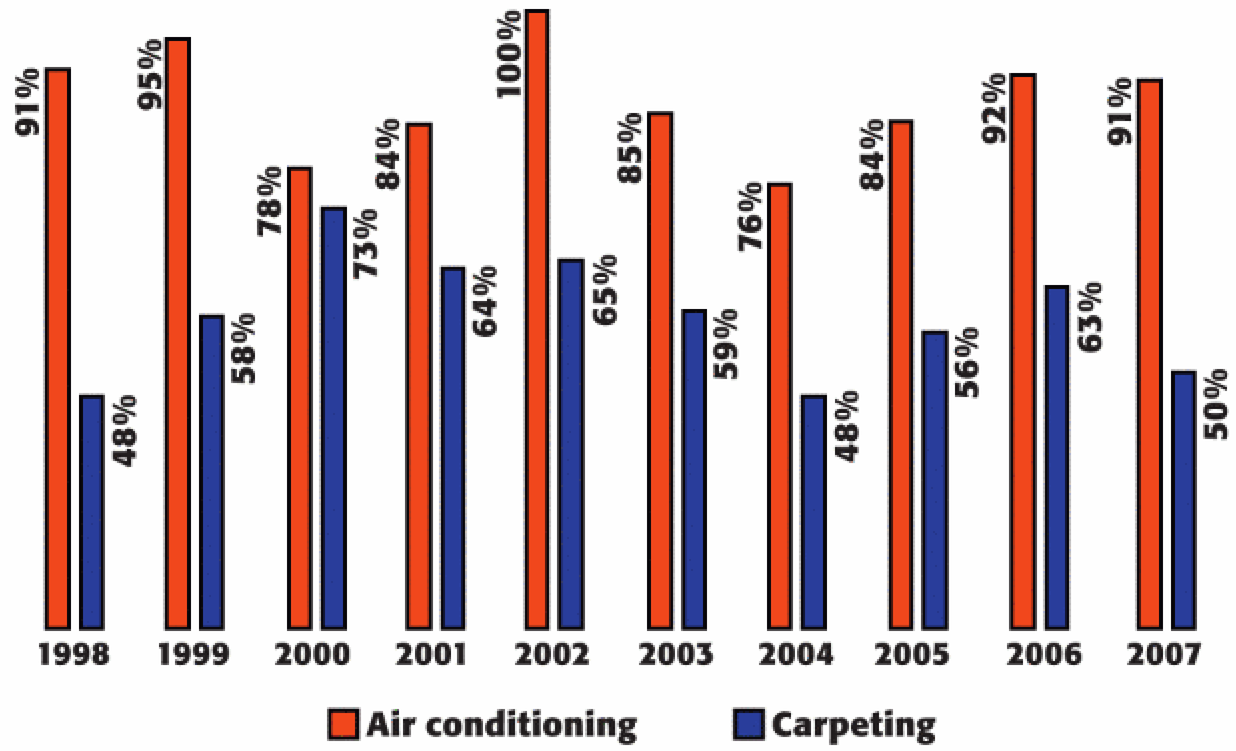
The three-story, 56,100-square-foot Harris Hall features apartment-style units that each have four bedrooms, two baths, a living room and a kitchenette with a full-size refrigerator, sink and counter.

Anderson Hall is a 59,886-square-foot, 257-bed building with 63 units, each including two double-occupancy rooms that share a bath.

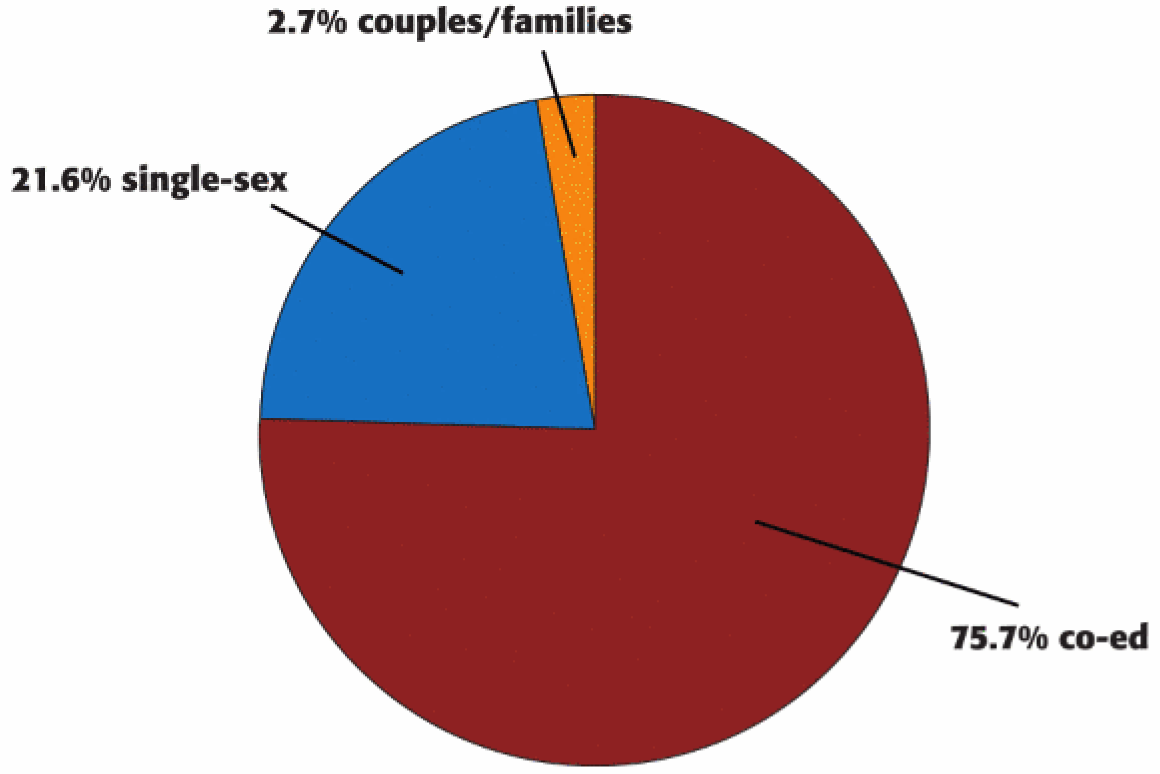
The architect is Lord, Aeck & Sargent (Atlanta).

Carpeting and air conditioning in residence halls

The incidence of both carpeting and air conditioning in new residence halls decreased in 2007 from the prior year. Results over the past 10 years (in percentage of new space):

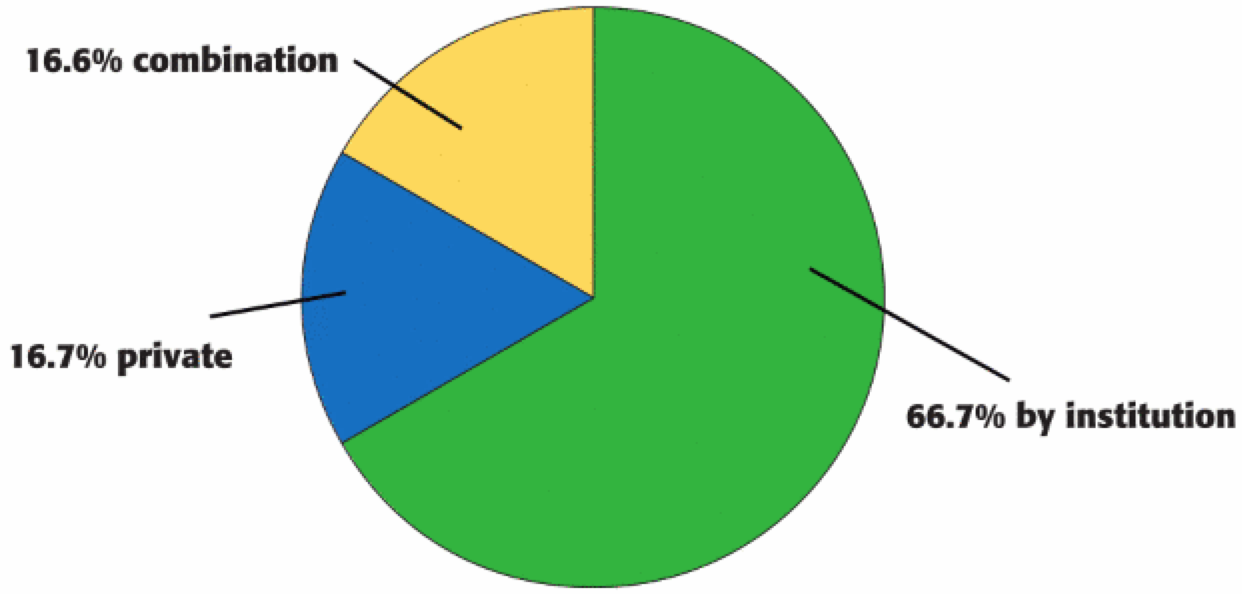


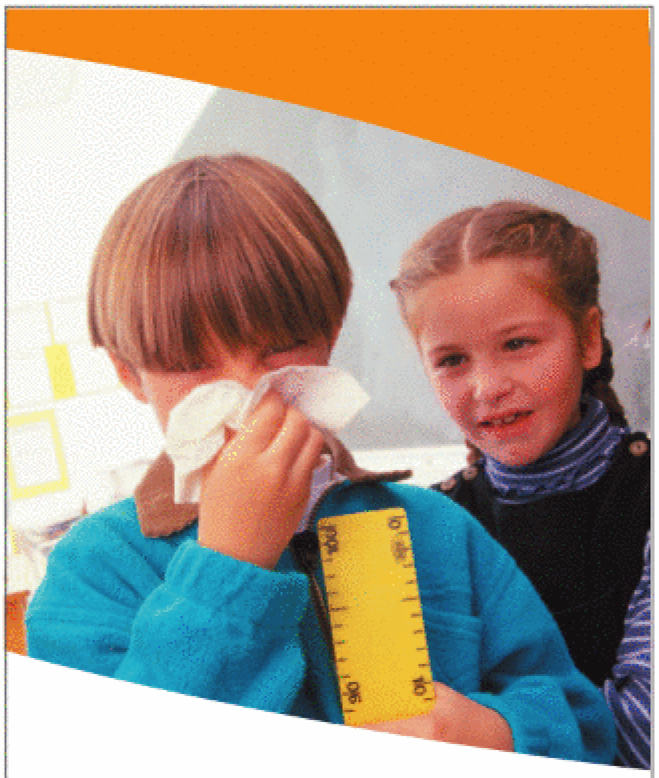
Makeup of new residence halls (2007)



How new residence hall construction was funded

(percentage of projects, 2007)





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At a glance

Overview of the median new residence hall constructed in 2007:

- **Cost**: $11.0 million
- **Size**: 69,125 square feet
- **Residents**: 204
- **Cost/square foot**: $166
- **Square feet/resident**: 319
- **Cost/resident**: $55,000

A matter of space

The average amount of square feet per resident over the past 10 years in new residence halls:

YEAR	AVE. SQ. FT./RES.
1998	294
1999	284
2000	319
2001	331
2002	340
2003	429
2004	457
2005	352
2006	357
2007	347

Project Snapshot:

Living and learning

Rangeview Hall is the first new student housing project at Occidental College, Los Angeles, in more than 25 years and is the largest hall on campus. The four-story, 274-bed residence features a red clay-tile roof, outdoor loggias, recessed windows and a soft, off-white exterior that meshes with the surrounding campus.

"Living rooms" with comfortable seating and table arrangements merge the functions of the lobby and reception areas at the main entrance and create distinct, informal gathering spaces for residents to relax and engage in conversation.

The $38.8 million project includes private bathrooms, refrigerators and microwaves in each room, large closets with mirrored doors, laundry rooms on each floor, and a fitness center. The residence hall also includes multiple student lounges throughout the building, a 257-space underground parking garage and wireless Internet connectivity. High-efficiency HVAC systems and special insulating glass are among the many energy-saving features that help the project exceed California Title 24 energy efficiency standards.

Occidental College, Rangeview Hall, Los Angeles. Photo courtesy of RMA Photography

Five classrooms are situated inside the building, which are intended to foster a "living-learning" environment. These classrooms are available for classes and double as meeting places for study groups and summer conferences, as well as for academic and social clubs.

The hall is arranged around a series of three open internal courtyards that offer additional gathering places for student socialization and divide the housing into three smaller-scaled neighborhoods. The largest courtyard serves as an outdoor banquet hall for "al fresco" dining, and can be used for fundraisers and other student activities.

The architect is MVE Institutional, Inc. (Irvine, Calif.)

Notable

4 Median number of students sharing a bathroom in new residence halls.

Stats

The median new residence hall project cost

$166 per square foot–

slightly less than the previous year, yet cost per resident increased significantly.

Project Snapshot:

High-tech housing

Pace University, New York City, transformed a former office building into a 500-student residence hall at 55 John Street—four blocks from the campus.

The residence hall will help boost retail commerce, increase the availability of young employees in the area, and provide summer housing to the downtown financial district's many interns.

"55 John Street," as the residence hall is known, features double and triple rooms, each with a private bath. All rooms are equipped with flatscreen TVs, DVD players, cordless phones with free local service, WiFi technology, cable TV and Internet access, and self-controlled heating and air-conditioning in each room. The residence hall has a top-floor lounge, fitness and laundry facilities, and a community kitchen.

Educational Housing Services, a provider of outsourced student housing in New York, completed the renovation.

Pace University, "55 John Street" residence hall, New York City. Photo courtesy of EHS/Doug Todd Photography

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Project Snapshot:

Green living

Pitzer College, Kenneth S. and Jean M. Pitzer Hall, Claremont, Calif. Photo © Hester + Hardaway

As part of its goal to become a carbon-neutral campus as quickly as possible, Pitzer College, Claremont, Calif., opened three new "green" residence halls in September 2007. The project's focus on the environment is expected to earn it a LEED-NC Gold rating.

Materials high in recycled content were used to construct the residence halls. The steel frame and columns are infilled with metal framing. The wood used on the balcony niches, handrails and fencing comes from suppliers certified by the Forest Stewardship Council. Interior materials were chosen carefully to be low in VOCs to keep the spaces healthy.

Energy-saving strategies include solar photovoltaic cells to generate electricity; energy-efficient heating and cooling, delivered through individually controlled fan-coil units in each room; window sensors that automatically shut off the HVAC equipment when students leave windows open; and platinum-rated boilers that provide hot water for showers and sinks, as well as for heating needs.

Dutch doors and double-glazed operable windows on opposite sides of the residence hall rooms maximize ventilation and fresh air. Overhangs and sunshades help keep rooms cool and reduce the need for air-conditioning. Dual glazing, insulation and the thermal mass of concrete floors keep heat inside on cool winter evenings.

A rainwater recycling system percolates rainwater into the residence hall landscaping, using basins planted with hardy, unmowed grasses and boulders to anchor plant life.

The architect is Carrier Johnson (San Diego). ■

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Changing Standards

Choosing a wireless network.

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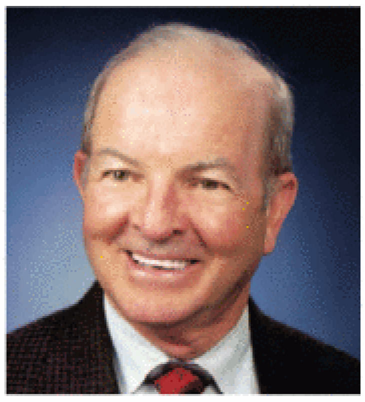

Day is senior analyst at KBD Planning Group, Young Harris, Ga., a firm specialized in educational facilities and technology planning. He can be reached at bday@kbdplanning.com. www.kbdplanning.com

As with most emerging technologies, today's market offers various wireless-enabled solutions. With various solutions existing and several on the horizon, schools and universities can start taking advantage of the benefits available.

IEEE 802.11 is a set of standards for wireless local area networks. For education, 802.11a, 802.11b and 802.11g have been the most widely accepted, followed by 802.11n, which has not been ratified, but is being manufactured and sold widely. The most recent version under discussion is 802.11s. In simple terms, the advantage of 802.11n and 802.11s is they can be managed in a large scale. Why is this so important to schools?

Information technology directors struggle with one issue with wireless networks. 802.11a, 802.11b and 802.11g work well if one or two computers per room access the network, but when a cart rolls into a classroom loaded with 30 or more laptops and all students turn them on to connect to the network at once, it brings the wireless network back to the old days of dial-up speeds. A managed mesh wireless network makes it possible for network access traffic to be rerouted to other nodes in the building that have capacity available rather than having a single node bogged down. More and more, schools are receiving grants for laptop cart stations, but those in the grant-writing department rarely think to include or consider the cost involved to provide a robust wireless network that can manage multiple users.

An access point in each room alone will not solve this issue; however, some manufacturers are addressing this problem. The IEEE 802.11s standard that is in the process of being ratified includes a managed wireless network known as 802.11 mesh architecture.

Multi points (MPs) can be individual devices using mesh services software to communicate with other devices in the network. They also can be 802.11 access points (APs) and provide access to the mesh network to mobile clients. MPs can take the role of a gateway and provide access to one or more networks through a mesh portal. In both cases, 802.11s has a proxy mechanism to provide addressing support for non-mesh 802 devices. In general, this makes it possible for 30 or more laptops to access the network by using software to tell other inactive access points in the building to evenly spread the load of the network.

Although IEEE has taken its time ratifying the standard, manufacturers are offering 802.11s products early so schools and universities can function more efficiently. Standardization efforts also are considering power-saving options, including solar power.

Make sure when considering a wireless network that you work with a vendor that can manage the dynamics of mesh networks. There is no broad-brush solution, so consider your institution's wireless requirements. ■

What's Next?

Green lives beyond Earth Day.

STEPHEN ASHKIN

Ashkin is executive director of the Green Cleaning Network, a 501(c)3 not-for-profit educational organization.
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SteveAshkin@GreenCleaningNetwork.org

It is safe to say that green is everywhere these days—from the newsstand to national newscasts and television programs. Beyond just the media hype, which may come and go, green is especially important among students who occupy the buildings that facility managers clean and maintain. Protecting the Earth has become important, especially if we can make it easy for everyone.

Recently, it was impressive to see the huge increase in interest and activity at schools and universities for Earth Day. Increasing numbers of students and staff members participated in many different ways. In discussions with some prominent green and environmental organizations, all reported a huge increase in both the quantity, and perhaps more important, the quality of this year's Earth Day events compared with last year.

So now that Earth Day has passed, what's next?

One of the most important, yet frequently overlooked, activities and strategies to keep green programs moving forward is ongoing communication. People take notice of Earth Day because of the activities that go along with it. But now is the time to keep the issue before building occupants, staff, visitors and other stakeholders—especially from a facilities perspective.

Think about it. If our stakeholders think about green only in terms of global warming or a single-day event, then what does that mean for the facilities department?

It is essential to make the connection about how facilities staff members affect climate change through their efforts to reduce energy and water use, reduce waste and increase recycling, as well as the specific improvements associated with green cleaning. For example, how will stakeholders know of the important accomplishments and benefits of using green chemicals, paper, equipment, processes, recycling and other strategies if no one informs them?

One opportunity is to participate in this year's "Green Cleaning Award for Schools & Universities," sponsored by *American School & University*, The Green Cleaning Network and the Healthy Schools Campaign. This program is a great way to keep the momentum going and be recognized at the same time. Numerous applicants from last year's awards have said that the application process itself helped them identify even more opportunities to improve their programs.

Entries will be judged by a panel of school stakeholders, cleaning industry experts and school health advocates. Judging criteria are modeled on *The Quick and Easy Guide to Green Cleaning in Schools*, published by the Healthy Schools Campaign. Copies can be requested at HealthySchoolsCampaign.org. The call for entries is open (asumag.com/green_cleaning_award), and the deadline for submissions is mid-September. Winners will be profiled in the December issue of *AS&U*. ■

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School Renewals

1950s-'60s schools: Obsolescence or longevity?

JAMES E. RYDEEN

Rydeen, FAIA, is an architect/facility planning specialist and former president of Armstrong, Torseth, Skold & Rydeen, Inc. (ATS&R), Minneapolis. He can be reached at Jrydeen@atsr.com.

Forty-three percent of existing public schools were built in the 1950s-'60s era. This era seems to have gained the reputation of cheap, energy-inefficient buildings that were not intended to last more than 30 years.

A study at one school district estimated it would cost $2.1 billion to fix its aging buildings. Many buildings were well-kept and clean, but their mechanical, electrical and plumbing systems were old and inefficient; the food-service equipment needed replacing; and the facilities did not comply with the Americans with Disabilities Act. Most of the buildings are only 30 to 50 years old and are showing signs of water damage, and wear and tear.

Experience has proven that public schools must be designed for long-term use—much longer than 30 years.

Many institutions keep up with most of their annual facility maintenance, but not with replacing major systems and equipment because annual budgets cannot cover the costs. Avoiding such dilemmas requires planning, scheduling and budgeting for the eventual upgrades.

But don't lump all of the '50s-'60s schools in the same category. Although some schools were built cheaply, many others have high-quality materials, systems and construction using life-cycle costing and value-engineering techniques. They were built to last and were energy-efficient for their day. Many of these schools have been or will be updated more economically than replacing them.

Many of these schools were designed with materials and systems that have proven adaptable to the educational changes that have occurred since the 1950s and 1960s.

With proper maintenance and updates, these schools are serviceable buildings with an extended useful life of more than 30 years. Spending $50 to $75 per square foot for upgrades may be more reasonable than constructing a new building that may cost more than $200 per square foot.

Schools will continue to be built and expected to last forever in the taxpayer's mind. Planned obsolescence in 30 years is a tough sell to the community.

If your school or university is building a new facility, enhance its longevity with:

•Functional space flexibility and adaptability to future educational changes.

•Construction drawings with detailing that creates ease of accessibility and maintenance.

•Construction specifications that clearly delineate the quality of construction.

•Durable materials and finishes.

•Life-cycle costing and value-engineering techniques to select materials, equipment and systems. ■

Free from lock and key

Electronic access-control solution replaces mechanical security system

Stonington Public School System, Old Mystic, Conn. Photo courtesy of Ken Donovan

Videx. The mechanical lock and key system at Stonington Public School System, Old Mystic, Conn., offered no effective way to control and audit access to school buildings. The school system wanted a security method that would enable it to identify people accessing school buildings and note the time of entry so this information could be recalled if an incident occurred.

Stonington Schools chose CyberLock because of its financial feasibility and its flexibility. CyberLock electronic cylinders were easy to install; the cylinders fit into the existing mechanical lock hardware, and no wiring was needed.

"I don't see how you can go wrong," says Ken Donovan, facility manager. "You can have electronic access control for under $300 per door."

Stonington Schools replaced the mechanical cylinders in the existing lock hardware on its fire-rated doors with CyberLock electronic cylinders to avoid the huge costs of a wired-in system. The fire code prohibited the district from drilling through a fire-rated door, modifying the jamb, or moving the door to another location.

The school system purchased the cylinders in small batches to work within its budget. Its goal was to install them in all of the buildings, beginning with the high school.

The security system's flexibility became useful when Stonington Schools experienced trouble with vending-machine theft. Someone had ordered a master key from the Internet and was stealing from the cafeteria vending machine. Putting in an electronic cylinder eliminated the problem.

"Not only does it [CyberLock] ensure security, it gives the teachers peace of mind as well," says Donovan. "They know that if something goes wrong, the system will show who was there."

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Lab exhaust system

Greenheck. The Vektor-CD (Centrifugal High Plume Dilution) Laboratory Exhaust System safely exhausts laboratory work environments. It uses a backward curved flat blade and backward curved airfoil blade that allow for efficient operation with reduced energy consumption and lower overall sound levels.

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Recycled fiber products

Kimberly-Clark/SCOTT. Recycled fiber and process chlorine-free SCOTT brand towel and tissue products are designed for customers who use 100 percent recycled fiber products. The new offerings include SCOTT brand 100 percent recycled fiber C-Fold Towels, Multi-Fold Towels, JRT Jr. Bathroom Tissue and Standard Roll Bathroom Tissue. A 100 percent recycled fiber SURPASS Facial Tissue also will be available in the coming months.

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All-purpose disinfectant

Clorox. Clorox Pro Quaternary All-Purpose Disinfectant Cleaner is EPA-registered to kill germs, including healthcare-associated and community-associated MRSA (HA-MRSA and CA-MRSA). It can be used on a variety of hard, non-porous surfaces and potential CA-MRSA "hot spots," including shower stalls, exercise equipment and mats, whirlpool units, steam rooms, artificial turf and helmets, and outdoor play equipment. It also can be used on surfaces in other work environments such as desks, bathrooms, handles and tables.

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$5 million grant

Miracle Recreation Equipment Co. Miracle's Grants for America's Schools program will award up to $5 million in grant money to help schools fund the purchase of Miracle commercial play and recreation equipment to help children learn through physical, social and cognitive development. The program will help fund the construction of more than 1,200 playgrounds throughout the United States, benefiting more than 60,000 children.

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Rooftop HVAC

Lennox. The Landmark R-410 rooftop unit line is ideal for both emergency and planned replacement jobs. Every 2- to 6-ton unit is ENERGY STAR-qualified for energy savings and meets 2010 efficiency standards. Available in gas/electric, cooling only (electric heat) and heat-pump models, all Landmark units use R-410A (the environmentally friendlier refrigerant replacing the chlorine-containing R-22). The units are available with stainless-steel heat exchangers, coil corrosion protection and hinged doors. They contain several standard features for convenience and a wide range of field-installed accessories.

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Recycling cart

Meese Orbitron Dunne Co. The Sortasaurus Trux line of recycling collection carts was developed to promote recycling and streamline the sorting process for recycling processors. The cart has three durable vinyl liners set within a weather-resistant, powder-coated steel frame on a combination wood and steel base with industrial-strength casters. The individual compartments enable plastic, glass, metals, paper or different grades of the same material to be separated at the point of collection rather than manually during processing.

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Waste not—want not... that goes for time as well as resources. The Kent and Euroclean CRI certified line of products helps conserve both. Take the Klenzor™ extractor for instance. Their single spray-jet eliminates excessive solution distribution and improves dry time. Cleaner, faster, greener... it's hard to imagine wanting more. **To schedule a product demonstration or to learn more about Kent and Euroclean product lines visit kenteurocelan.com or call 800-545-4372.**

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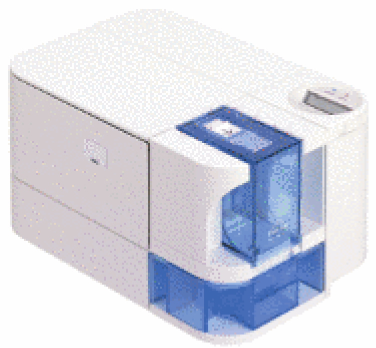

Card printing

Nisca. The Nisca PR-C101 card printer has a lightweight construction and small footprint. The card exit location can be switched from the front or back of the printer. An all-in-one removable ribbon cartridge with cleaning roller makes changing the consumables and cleaning the printer virtually maintenance-free.

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Hygienic hand dryer

World Dryer Corp. The AirForce hand dryer uses multiple air jet technology that dries hands fast, using only 1.1 kilowatts of energy. It has a lightweight design; a sleek and modern die-cast aluminum cover; and is available in white, black or polished chrome. It is coated with SteriTouch patented anti-bacterial technology, making it a safe option for hygienic restrooms.

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Rust-guard chair

Palmer Snyder. PS Event Furniture has introduced a new steel coating technology for "polyfold" indoor/outdoor folding chairs. This new coating technology prevents the formation of rust in all types of weather conditions. The EventXpress C600RG Folding Chair features an 18-gauge, ¾-inch diameter, tubular steel frame with a molded polypropylene plastic seat and back. Each chair weighs 7.1 pounds. Palmer Snyder guarantees that C600RG chairs will have no rust problems for a period of three years from the date of shipment.

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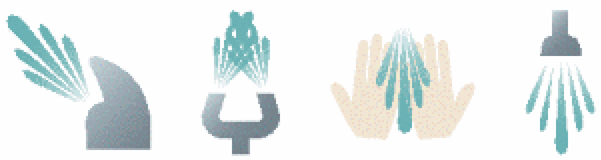

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Embracing the digital era

Enterprise video communications solution centralizes university's technical assets and increases enrollment

Lamar University, Beaumont, Texas. Photo courtesy of Lamar University

Media Publisher. Lamar University, Beaumont, Texas, sought to deliver supplemental learning resources in a more dynamic format to accommodate its "digital-era" students. Still recovering from the effects of Hurricane Rita, the university had to maximize its existing IT investments and use its funds in the best way possible.

Media Publisher helped the university enhance and extend its curriculum by initiating an enterprise video communications (EVC) solution. The EVC software has centralized the university's existing video assets, allowing users to find, publish and reuse them easily. It enables faculty to communicate more efficiently and consistently with colleagues and students while maximizing the return from existing IT investments.

The benefits of the software include increased enrollment because of technology-enhanced education in the classroom and through online courses. The university also has seen greater employee and student satisfaction. Faculty members are able to create and share their own training materials, leveraging the expertise and creativity of its educational staff.

Lamar University views its video system not as a technical luxury, but as a cost of doing business that enhances its ability to deliver its mission of "expanding minds and shaping futures."

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Bringing down the decibel level

Heat pump designed for quiet operation improves classroom learning environment

Val Verde Unified School District, Perris, Calif. Photo courtesy of Geary Pacific

Bard. Val Verde Unified School District, Perris, Calif., has managed its population growth with modular construction techniques in many of its buildings. Although inexpensive to build, they can be noisy.

"For a long time, we were looking at ways to improve the quality and acoustics of our building's construction," says Todd Butcher, director of maintenance and operations. "We also wanted to see if we could obtain quieter-operating air-conditioning units. Our goal was to reduce the overall decibel levels within each of our classrooms."

Geary Pacific, the local distributor of Bard HVAC equipment, suggested the district test the Quiet Climate 2 heat pump. Designed specifically to provide quiet operation in classrooms, especially portable units, the pump provides operating sound levels that are 20 to 35 times quieter than a standard wall-mounted heat pump. The HVAC unit also is 44 percent more energy-efficient and uses Earth-friendly refrigerants. Its one-piece design enables fast installation and reduced service costs.

Since the district installed the Quiet Climate 2 in its audiology laboratory, the overall ambient noise level in the clinic has dropped from 58 dbA to 37 dbA (decibels recorded 10 feet in front of the unit.)

"The environment for evaluating our students has improved by at least 200 percent," says Randy Lerner, district audiologist. "With the old unit, I had to turn it off during a testing session because it was so loud," says Lerner. "Now students comment on how quiet the lab is—and that's when the unit is on!"

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Portable soccer goal

Bison Inc. All official-size (24-foot by 8-foot) Bison Shootout Soccer portable goals are compatible with gooseneck football goals. Compatibility allows soccer goals to be placed in front of gooseneck football goal posts by repositioning the soccer goal's rear horizontal stabilizer bar. Both sports can use the same goal line easily. This especially is critical for fields with permanently painted field markings.

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Creating versatility

Adaptable furniture adds to modern design elements in new elementary school

The HON Company. New Berlin Elementary School, Jacksonville, Fla., was designed to house 750 students in grades K to 5. Its modern design features daylighting, large classrooms to accommodate various table groupings for collaborative learning, a technology center, an art lab and several conference rooms. The desks, tables and seating throughout the school allow teachers and students to tailor configurations to their unique learning styles.

While the school was still in its initial design stages, Cheryl Thompson, the district interior designer, knew she wanted to use HON products throughout the building. She cites quality workmanship, versatility, durability and aesthetics as the main attractions of the products and appreciates the limited lifetime warranty.

"We frequently use the Accomplish student desking and seating, and Activity tables in classrooms," says Thompson. "We love the versatility they provide. Plus, they're durable. They hold up to heavy kid use and traffic."

Accomplish chairs and adjustable-height student desks used in the intermediate classrooms can be grouped together to form tables or can be used individually. Kidney and trapezoid activity tables used in lower grade levels facilitate group learning, yet leave room on the floor for circle time and sharing. All classrooms feature a 30-inch by 60-inch educational workstation—adjustable computer tables that seat up to four students.

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New Berlin Elementary School, Jacksonville, Fla.
Photo courtesy of Steve Bennett/Living Image, Inc.

Assessing facility conditions

New software supplies university with valuable information about facility infrastructure and helps win support for funding

University of Massachusetts Medical School, Worcester. Photo courtesy of University of Massachusetts Medical School

VFA, Inc. To develop its annual capital budget for facilities renewal, sustainment and construction, the University of Massachusetts Medical School (UMMS), Worcester, historically employed an internal team to assess needs and develop deficiency lists. Several challenges led UMMS to re-evaluate this process.

First, it began to see increased operational issues related to equipment at the end of its useful life. However, it often was harder to win funding for systems-renewal projects than for higher-profile programs, such as new equipment and renovations. Second, the university needed more detailed data related to its backlog. Finally, UMMS needed support in articulating the ROI of infrastructure investments.

To address these issues, the university worked with VFA, Inc. to assess facility conditions and provide a prioritized list of deficiencies to roll into its capital plan. It also used capital-planning management software to centrally maintain the facility data and provide tools for forecasting long-term spending needs.

With industry-standard cost data from RSMeans incorporated into the software, UMMS got a clear picture of deferred-maintenance costs. The software also provided tools for assigning requirement priorities, projecting long-term costs, and understanding the impact of not funding infrastructure improvements.

With detailed, up-to-date information about facility and system conditions, as well as data-driven projections of need, UMMS succeeded in winning support for more than twice the level of infrastructure funding that was budgeted the previous year.

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Sanitary faucets

Component Hardware Group. SANIGUARD antimicrobial-treated spots are designed for use with potable water on its Encore premium plumbing fixtures. The inside diameter of the spout is coated with an inorganic, silver ion antimicrobial to reduce bio-fouling by inhibiting the growth of a broad spectrum of bacteria and odor-causing molds and fungi. The efficacy of SANIGUARD on treated surfaces can be expected to last for the life of the product.

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Sielox Access Control. The 1500 Series manages two to 16 doors in a large configuration (AC-1500L), or two to four doors with a small configuration (AC-1500S). When used with the Sielox X-LAN, up to 32 doors can be managed with one Ethernet connection. ▪

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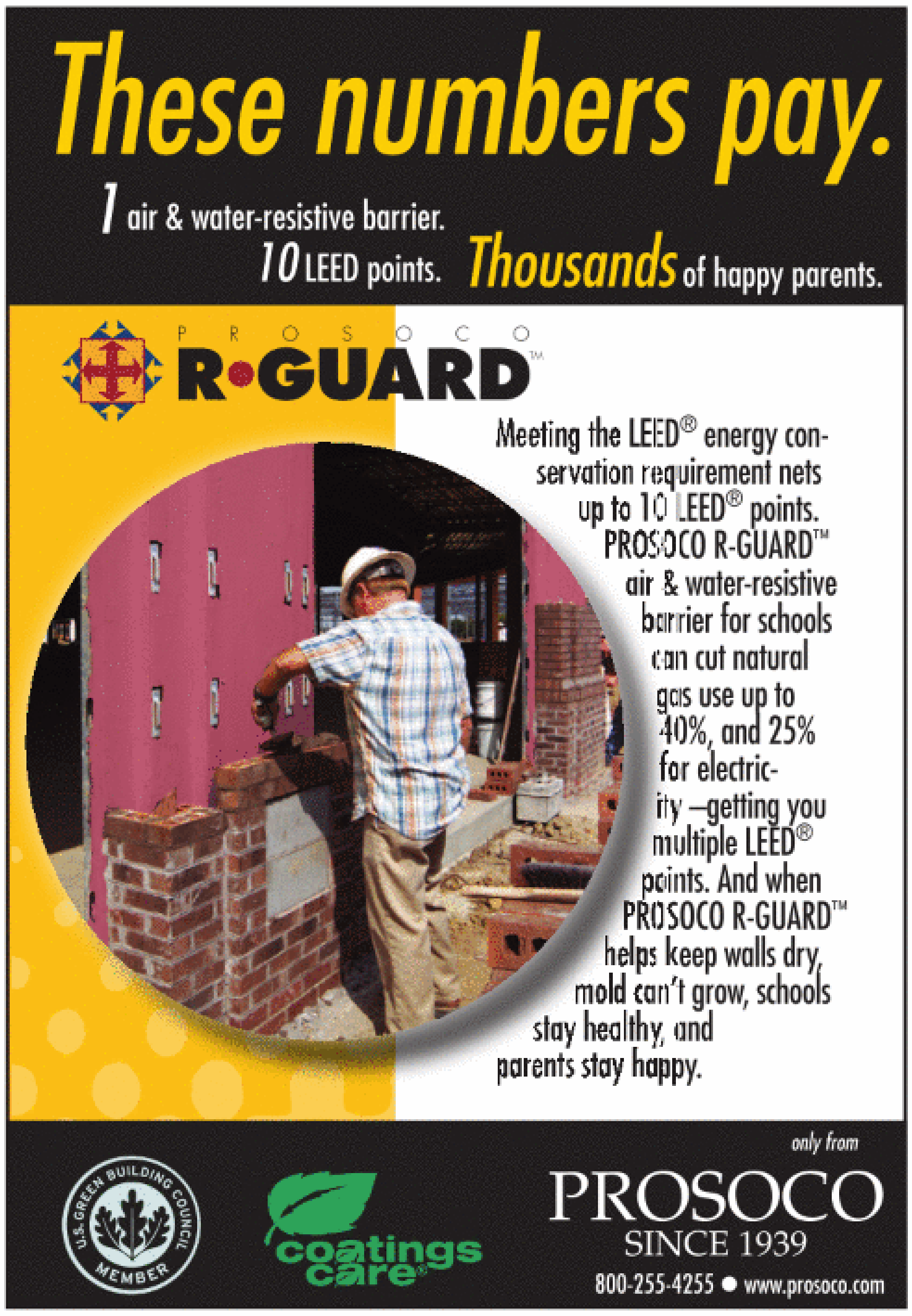

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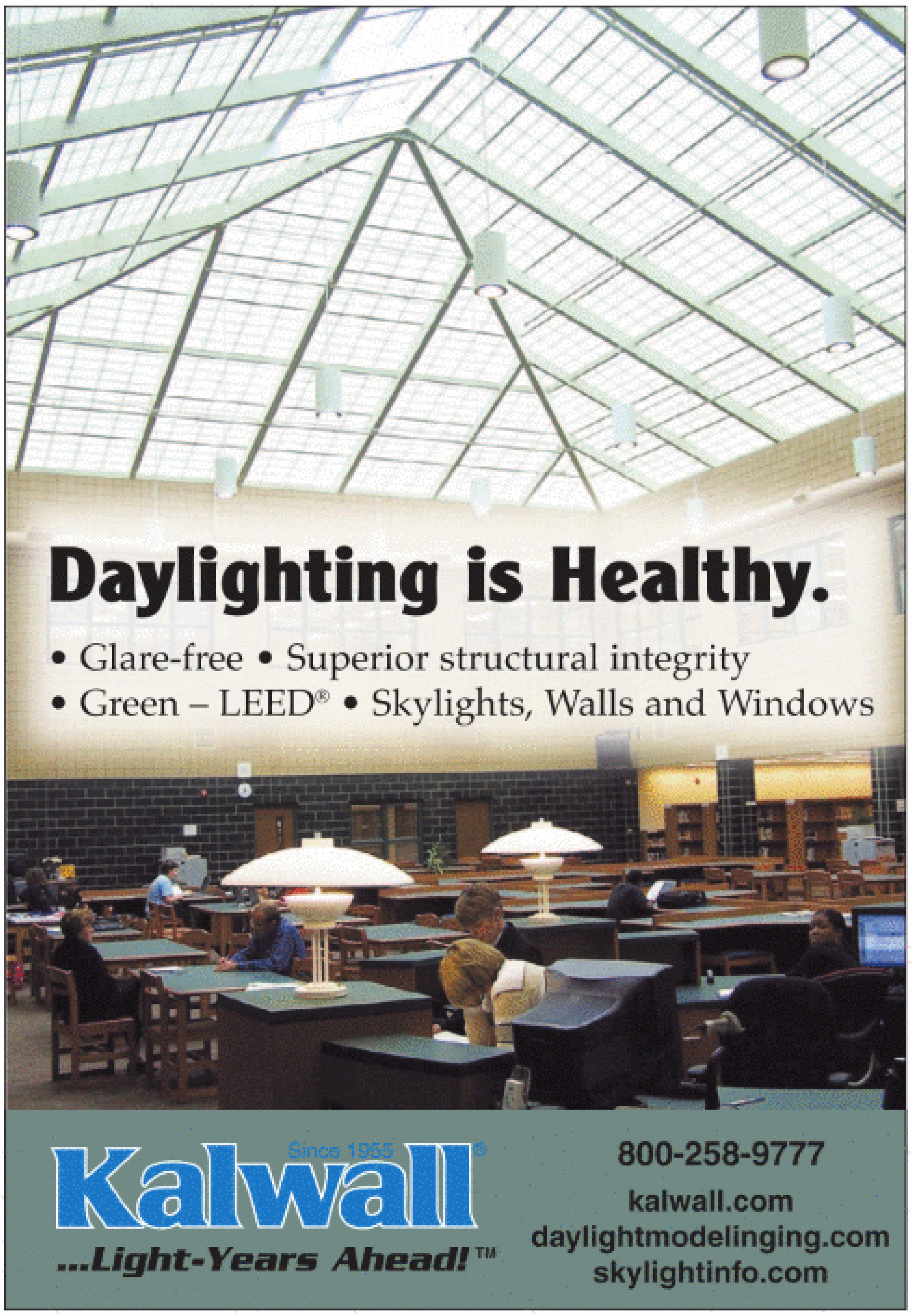

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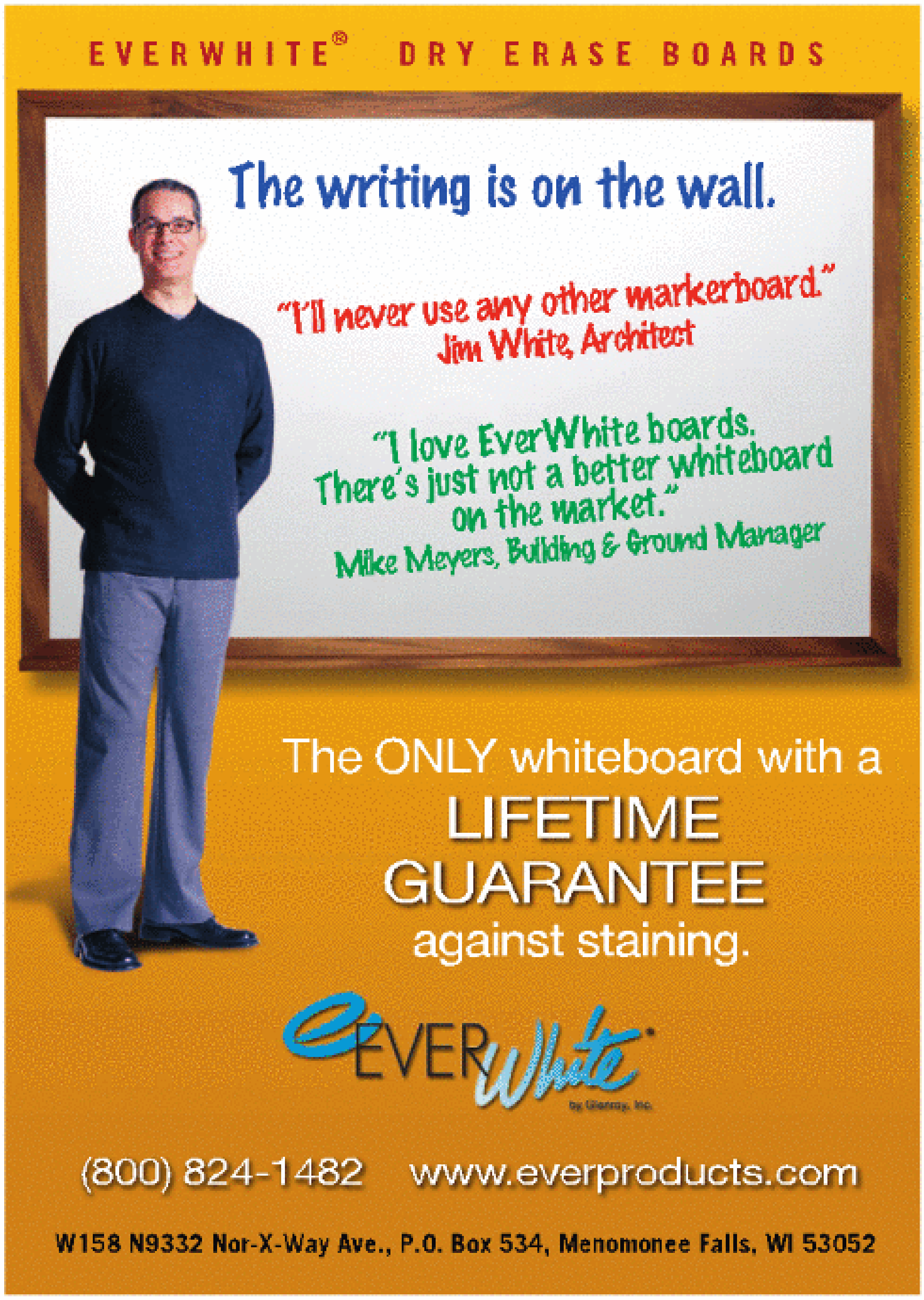

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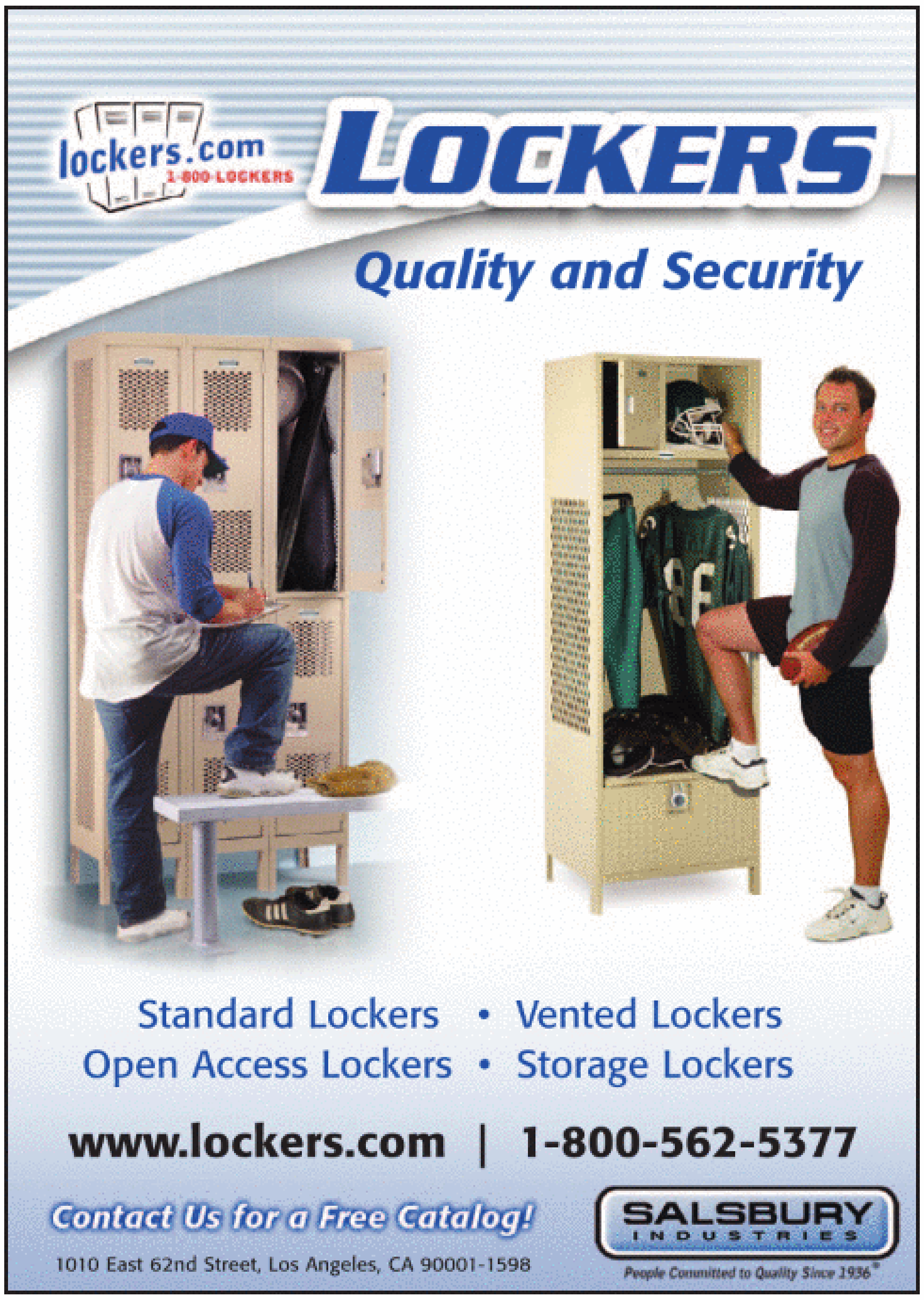

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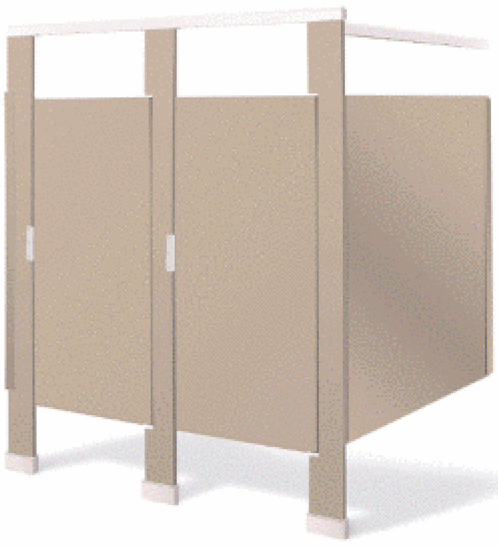

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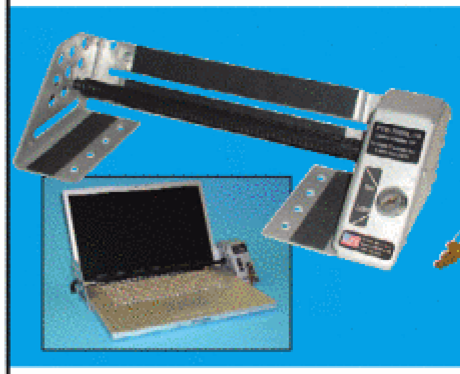

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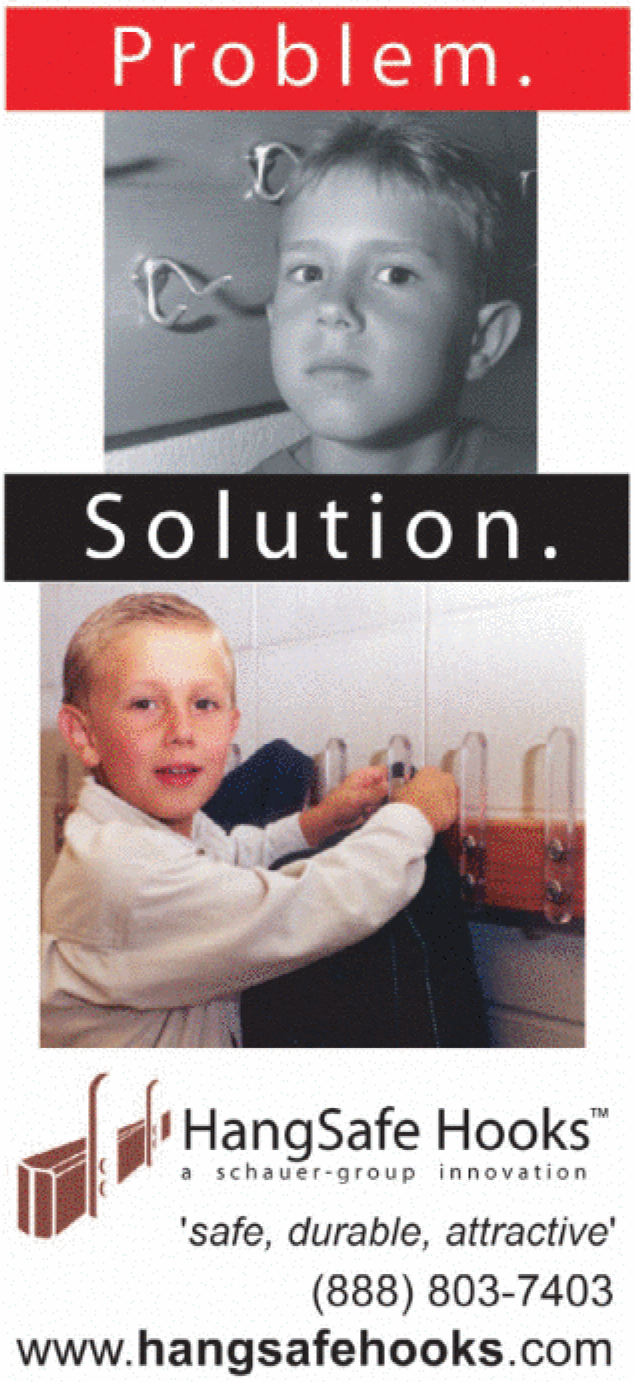

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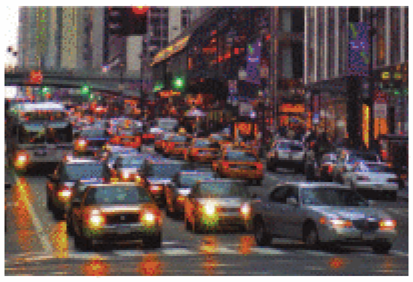

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